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Attorney File Ref: 102792-008 (11006P1 US)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Lamson NGUYEN et al.
Serial No.:	10/509555
Filing Date:	September 29, 2004
Examiner:	To Be Assigned
Art Group:	To Be Assigned
Title:	CLEANING APPARATUS AND METHOD FOR USING THE SAME

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28 April 2006

Mail Stop PETITION
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION TO ADMIT OATH & DECLARATION PURUSANT TO

37 CFR 1.47(A), 35 USC 118

(JOINT INVENTOR -- INVENTOR UNAVAILABLE - 'CANNOT BE REACHED')

The undersigned respectfully requests recognition of the satisfaction of the requirements for filing of an application in the USPTO pursuant to 37 CFR 1.47(a), 35 USC 118, notwithstanding the non-cooperation of the named joint inventor, Lamson Nguyen, to sign the *Combined Oath, Declaration and Power of Attorney* in the application, and permit the successor in interest, Reckitt Benckiser Inc., the continue prosecution of the application in his stead.

In order to support this petition, the applicant encloses copies of the following documents for consideration by the Office:

(a) Copy of a *Combined Oath, Declaration and Power of Attorney* executed by co-inventors Lino Ferri and Leonard Spitzer with respect to the instant application;

(b) Copy of a *Combined Oath, Declaration and Power of Attorney* executed by co-inventor Carol Ann Belansky with respect to the instant application;

(c) Copy of a *Combined Oath, Declaration and Power of Attorney* executed by co-inventor Carl Dibnah with respect to the instant application;

(d) Copy of a *Combined Oath, Declaration and Power of Attorney* executed by co-inventors Ian James Corkhill and Diane Neiman with respect to the instant application;

(e) Copy of a *Combined Oath, Declaration and Power of Attorney* executed by co-inventors Michael David Love, Alan James Thomas and Jeanne Marie Weller with respect to the instant application;

(f) Copy of a *Combined Oath, Declaration and Power of Attorney* executed by co-inventors Tor Alden, Charles Ashley and John Eugene Studer with respect to the instant application;

(g) Copy of a letter dated March 31, 2006 addressed to Mr. Lamson Nguyen, of Somerset, New Jersey transmitting copies of relevant patent applications as well as copies of documents requiring signature relevant to aforesaid patent applications for his review, and signature of the latter documents;

(h) Copy of Federal Express tracking report, indicating receipt of the aforesaid letter at the last known residence address of co-inventor Lamson Nguyen on April 3, 2006, as signed by "M. Mai";

(i) Copy of a letter dated April 7, 2006 addressed to Mr. Lamson Nguyen, of Somerset, New Jersey transmitting copies of relevant patent applications as well as copies of documents requiring signature relevant to aforesaid patent applications for his review, and signature of the latter documents;

(j) Copy of Federal Express tracking report, indicating receipt of the aforesaid letter at the last known residence address of co-inventor Lamson Nguyen on April 10, 2006, as signed by "G. Nguyen";

(k) Copy of the documents transmitted with (g) and (i) indicated above.

In view of the foregoing facts that are believed to clearly establish that (i) on two successive opportunities, the documents requiring signature by co-inventor Lamson Nguyen were received by adults at his last known residence address and, (ii) pursuant to the repeated transmissions of these documents on March 31, 2006 and April 7, 2006 that co-inventor Lamson Nguyen has had ample opportunity to review these aforesaid documents and notwithstanding these opportunities, continues to refuse to join in the above-identified application.

The undersigned submits the following additional documents which support the petitioner's position that Lamson Nguyen's reluctance to cooperate with regard to the execution of patent documents is intentional. These further documents are:

(l) *Decision According Status Under 37 CFR 1.47(a)* dated October 14, 2005 with regard to U.S. serial number 29/222,679;

(m) *Decision Refusing Status Under 37 CFR 1.47(a)* dated October 18, 2005 with respect to U.S. serial number 29/222,613;

(n) *Decision Granting Status Under § 1.47(a)* dated November 21, 2005 with regard to U.S. serial number 29/222,628;

(o) *Decision According Status Under 37 CFR 1.47(a)* dated October 13, 2005 with respect to U.S. serial number 29/221,904;

(p) *Decision According Status Under 37 CFR 1.47(a)* dated October 18, 2005 with regard to U.S. serial number 29/221,817

In each of the aforesaid applications relating to documents (l)-(p) Lamson Nguyen was a named co-inventor, and in the former petitions his prior refusal had been noted, and the prior petitions granted. It is believed that the foregoing readily demonstrates that Lamson Nguyen remains non-cooperative over a span of many months, and continues in his refusal to cooperate in the execution of any documents requiring his signature relating to either U.S. design or utility patent applications of which he is a named co-inventor and which are currently pending before the USPTO.

The Applicant, Reckitt Benckiser Inc., prays that this petition be granted to avoid irreparable damage, e.g., loss of rights to its patent application as well as potential loss of its rights to any patents which may issue therefrom as they are the inventors' successor in interest.

Favorable consideration of this petition and return to the normal course of prosecution is respectfully requested. It is respectfully requested that the Combined Oath, Declaration and Power of Attorney be admitted pursuant to 37 CFR 1.47(b) wherein the inventor relating to this U.S. patent application cannot be reached. It is further respectfully requested that all claims to priority rights be recognized.

Authorization to Charge USPTO Deposit Account

The Commissioner is authorized to debit any necessary fees which may be required to ensure consideration entry of this paper, and any of the enclosures thereto, to USPTO Deposit Account 14-1263 in the name of Norris McLaughlin & Marcus, PA.

Should the Office believe that telephonic communication would advance the prosecution of the instant application, or should there be any question concerning this paper, the Office is invited to telephone the undersigned at the number given below.

Respectfully submitted,

Andrew N. Parfomak Date: 28 Apr 2006

Andrew N. Parfomak
Reg. No. 32,431
Norris, McLaughlin & Marcus, PA
875 Third Avenue, 18th Floor
New York, NY 10022
Tel: (212) 808-0700

CERTIFICATE OF EXPRESS MAIL

I hereby certify that this paper and all papers stated as being attached herewith are being deposited with the United States Postal Service as Express Mail, label no. EV

EV 921045744 US in an envelope addressed to Mail Stop PETITION, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

By: Kimberly Brittingham
Kimberly Brittingham

Date: 4/28/06

COMBINED OATH, DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe that I am the original, first and sole inventor (only if one name is listed below) or an original, first and joint inventor (only if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

CLEANING APPARATUS AND METHOD FOR USING THE SAME

The specification of which has been filed on 9/29/04 in the US Patent and Trademark Office as a 371 of PCT/ GB03/01449. (I hereby agree that the attorney may insert the appropriate date and serial numbers where applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

I hereby claim foreign priority benefits under title 35, U.S.C. §119 of any foreign application(s) for patent or inventor certificates listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

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(Number)	(Country)	(Day/Month/Year Filed)		
0223509.1	GB	10 October 2002	[X]Yes	[ ] No
(Number)	(Country)	(Day/Month/Year Filed)		

I hereby claim to benefit under 35 U.S.C. §119 (e) of any United States Provisional application(s) listed below:

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between the filing date of the prior application and the national or PCT international filing date of this application:

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I hereby declare that all statements made herein of my own knowledge or true and that all statements made on information and belief are believed to be true; and further that these statements for made with the knowledge that willful false statements and like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Power of Attorney: As a named inventor, I hereby appoint

[X] Practitioners Associated with the Customer Number: 27389

as my/our attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from the Assignee of this application as to any action to be taken in the United States Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned.

SEND ALL CORRESPONDENCE TO:	DIRECT TELEPHONE CALLS TO:
Norris, McLaughlin & Marcus PA 220 East 42nd Street, 30th Floor New York, NY 10017	Andrew N. Parfomak (212) 808-0700

Full Name of Joint Inventor:	Tor ALDEN
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Gladstone, NJ
Post Office Address:	Huckstuder Designs Inc, 17 Mendham Road, Gladstone, New Jersey 07934, USA

Full Name of Joint Inventor:	Charles ASHLEY
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Clinton, NJ
Post Office Address:	PO Box 5325, Clinton, New Jersey 08809, USA
Full Name of Joint Inventor:	Carol Ann BELANSKY
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Roselle Park, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Ian James CORKHILL
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	West Milford, NJ
Post Office Address:	Morris Corporate Center IV, 399 Interpace Parkway, Parsippany, New Jersey 07645, USA
Full Name of Joint Inventor:	Carl DIBNAH
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	British
Residence Address:	Hull, UK
Post Office Address:	Dansom Lane, Hull, HU8 7DS, UK
Full Name of Joint Inventor:	Lino FERRI
Inventor's Signature	x
Date of Signature:	x 10/19/04
Inventor's Citizenship:	United States
Residence Address:	Middletown, NJ
Post Office Address:	147 Morningside Avenue, Middletown, New Jersey 07748, USA
Full Name of Joint Inventor:	Michael David LOVE
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	British
Residence Address:	Parsippany, NJ

Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Lamson NGUYEN
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Somerset, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Diane NEIMAN
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Colonia, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Leonard SPITZER
Inventor's Signature	X Leonard B. Spitzer
Date of Signature:	X 10-20-04
Inventor's Citizenship:	United States
Residence Address:	Hewitt, NJ
Post Office Address:	81 Warwick Turnpike, Hewitt, New Jersey 07421, USA
Full Name of Joint Inventor:	John Eugene STUDER
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Morris Plains, NJ
Post Office Address:	106 Burnham Road, Morris Plains, New Jersey 07950, USA
Full Name of Joint Inventor:	Alan James THOMAS
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	British
Residence Address:	Nutley, NJ
Post Office Address:	Morris Corporate Center IV, 399 Interpace Parkway, Parsippany, New Jersey 07645, USA

Full Name of Joint Inventor:	Jeanne Marie WELLER
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Glenrock, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA

COMBINED OATH, DECLARATION AND POWER OF ATTORNEY

As a named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe that I am the original, first and sole inventor (only if one name is listed below) or an original, first and joint inventor (only if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

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Date of Signature:	
Inventor's Citizenship:	British
Residence Address:	Nutley, NJ
Post Office Address:	Morris Corporate Center IV, 399 Interpace Parkway, Parsippany, New Jersey 07645, USA

Full Name of Joint Inventor:	Jeanne Marie WELLER
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Glenrock, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA

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US Patent Application:	Filing Date:	Status:

I hereby declare that all statements made herein of my own knowledge or true and that all statements made on information and belief are believed to be true; and further that these statements for made with the knowledge that willful false statements and like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Power of Attorney: As a named inventor, I hereby appoint

X	Practitioners Associated with the Customer Number:	27389

as my/our attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from the Assignee of this application as to any action to be taken in the United States Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned.

SEND ALL CORRESPONDENCE TO:	DIRECT TELEPHONE CALLS TO:
Norris, McLaughlin & Marcus PA 220 East 42nd Street, 30th Floor New York, NY 10017	Andrew N. Parfomak (212) 808-0700

Full Name of Joint Inventor:	Tor ALDEN
Inventor's Signature	
Date of Signature:	10/13/04
Inventor's Citizenship:	United States
Residence Address:	Gladstone, NJ
Post Office Address:	Huckstuder Designs Inc, 17 Mendham Road, Gladstone, New Jersey 07934, USA

Full Name of Joint Inventor:	Charles ASHLEY
Inventor's Signature	Charles R. Ashley
Date of Signature:	10-20-04
Inventor's Citizenship:	United States
Residence Address:	Clinton, NJ
Post Office Address:	PO Box 5325, Clinton, New Jersey 08809, USA
Full Name of Joint Inventor:	Carol Ann BELANSKY
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Roselle Park, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Ian James CORKHILL
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	West Milford, NJ
Post Office Address:	Morris Corporate Center IV, 399 Interpace Parkway, Parsippany, New Jersey 07645, USA
Full Name of Joint Inventor:	Carl DIBNAH
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	British
Residence Address:	Hull, UK
Post Office Address:	Dansom Lane, Hull, HU8 7DS, UK
Full Name of Joint Inventor:	Lino FERRI
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Middletown, NJ
Post Office Address:	147 Morningside Avenue, Middletown, New Jersey 07748, USA
Full Name of Joint Inventor:	Michael David LOVE
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	British
Residence Address:	Parsippany, NJ

Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Lamson NGUYEN
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Somerset, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Diane NEIMAN
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Colonia, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Leonard SPITZER
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Hewitt, NJ
Post Office Address:	81 Warwick Turnpike, Hewitt, New Jersey 07421, USA
Full Name of Joint Inventor:	John Eugene STUDER
Inventor's Signature	John E Studer
Date of Signature:	10/12/04
Inventor's Citizenship:	United States
Residence Address:	Morris Plains, NJ
Post Office Address:	106 Burnham Road, Morris Plains, New Jersey 07950, USA
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Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	British
Residence Address:	Nutley, NJ
Post Office Address:	Morris Corporate Center IV, 399 Interpace Parkway, Parsippany, New Jersey 07645, USA

Full Name of Joint Inventor:	Jeanne Marie WELLER
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Glenrock, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA

COMBINED OATH, DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe that I am the original, first and sole inventor (only if one name is listed below) or an original, first and joint inventor (only if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

CLEANING APPARATUS AND METHOD FOR USING THE SAME

The specification of which has been filed on 9/29/04 in the US Patent and Trademark Office as a 371 of PCT/ GB03/01449. (I hereby agree that the attorney may insert the appropriate date and serial numbers where applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

I hereby claim foreign priority benefits under title 35, U.S.C. §119 of any foreign application(s) for patent or inventor certificates listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application			Priority Claimed	
0207710.5	GB	3 April 2002	[X]Yes	[ ] No
(Number)	(Country)	(Day/Month/Year Filed)		
0223509.1	GB	10 October 2002	[X]Yes	[ ] No
(Number)	(Country)	(Day/Month/Year Filed)		

I hereby claim to benefit under 35 U.S.C. §119 (e) of any United States Provisional application(s) listed below:

US Provisional Application Serial No.:	Filing Date:

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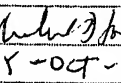
Inventor's Signature	
Date of Signature:	15-Oct-04
Inventor's Citizenship:	United States
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Date of Signature:	
Inventor's Citizenship:	United States
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Post Office Address:	106 Burnham Road, Morris Plains, New Jersey 07950, USA
Full Name of Joint Inventor:	Alan James THOMAS
Inventor's Signature	
Date of Signature:	OCTOBER 21ST, 2004.
Inventor's Citizenship:	British
Residence Address:	Nutley, NJ
Post Office Address:	Morris Corporate Center IV, 399 Interpace Parkway, Parsippany, New Jersey 07645, USA

Full Name of Joint Inventor:	Jeanne Marie WELLER
Inventor's Signature	Jeanne Marie Weller
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Glenrock, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA

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Inventor's Citizenship:	British
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Post Office Address:	Dansom Lane, Hull, HU8 7DS, UK
Full Name of Joint Inventor:	Lino FERRI
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Middletown, NJ
Post Office Address:	147 Morningside Avenue, Middletown, New Jersey 07748, USA
Full Name of Joint Inventor:	Michael David LOVE
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	British
Residence Address:	Parsippany, NJ

Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Lamson NGUYEN
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Somerset, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Diane NEIMAN
Inventor's Signature	Diane Neiman
Date of Signature:	10-14-2004
Inventor's Citizenship:	United States
Residence Address:	Colonia, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA
Full Name of Joint Inventor:	Leonard SPITZER
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
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Post Office Address:	81 Warwick Turnpike, Hewitt, New Jersey 07421, USA
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Full Name of Joint Inventor:	Alan James THOMAS
Inventor's Signature	
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Inventor's Citizenship:	British
Residence Address:	Nutley, NJ
Post Office Address:	Morris Corporate Center IV, 399 Interpace Parkway, Parsippany, New Jersey 07645, USA

Full Name of Joint Inventor:	Jeanne Marie WELLER
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Glenrock, NJ
Post Office Address:	One Phillips Parkway, Montvale, New Jersey 07645, USA

NORRIS MCLAUGHLIN & MARCUS, PA
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NEW JERSEY OFFICE
P.O. BOX 1018
SOMERVILLE, NJ 08876-1018

MERITAS LAW FIRMS WORLDWIDE

VIA FEDERAL EXPRESS OVERNIGHT SERVICE,, SIGNATURE REQUIRED

March 31, 2006

Mr. Lamson Nguyen
278 Maple Avenue
Somerset, New Jersey 08873

Re: Documents Requiring Signatures

Dear Lamson:

I note I never received a response to my prior letter of January 27, 2006.

I am enclosing a set of documents which, as you know, require your signature. I am reminded by Bob Hyde, Esq. of Reckitt Benckiser, Inc. that by virtue of your prior employment you were obliged to previously sign these documents, and there is a continuing obligation to sign the enclosed documents relating to inventions made during the term of your employment at Reckitt Benckiser, Inc. For your convenience, I have attached these documents in ordered sets relating to each identified application. Each document requiring your signature includes a small removable red flag which indicates where you should sign and, where necessary, date the document. I would ask that you use permanent blue ink in order to sign these documents. (Frequently, we are queried whether a black-ink signature is the genuine copy or a photocopy; using blue ink eliminates the possibility of such a mix-up.)

You will also find enclosed a postage-paid courier envelope which has been pre-addressed to my New York office. If you do sign the enclosed documents, I would very much appreciate it if you would merely return them to me in that postage-paid courier envelope.

Also, if for whatever reason you decline to sign these documents, notwithstanding the continuing obligations which I have mentioned above, I am enclosing a separate letter addressed to you which I ask that you review and sign, and return to me in the postage-paid envelope provided. I am unaware of any reasons which you may have for not cooperating in signing these documents, however, if you do decline to sign these documents, I would very much appreciate if you could at least sign this second enclosed letter and return it to me at my New York office.

If you have any questions regarding this request, or if you would just like to talk to me on any issue relating to the same, of course feel free to give me a call directly at my New York office, or alternately, send me an e-mail at anparfomak@nmmlaw.com.

Turning now to the documents, enclosed please find the following documents for your review and signature:

Reckitt Benckiser file 11006P1; NMM file 102792-008

U.S. Combined Oath, Declaration and Power of Attorney, having affixed thereto a copy of the application as filed on September 29, 2004 in the USPTO;
U.S. Assignment of Patent Application.

Reckitt Benckiser file 11256P3 US; NMM file 102792-133

U.S. Combined Oath, Declaration and Power of Attorney, having affixed there to a copy of the U.S. application as filed on December 21, 2005 in the USPTO;
U.S. Assignment of Patent Application.

Reckitt Benckiser file 11593D3 US; NMM file 102792-481

U.S. Combined Oath, Declaration and Power of Attorney, having affixed there to a copy of the U.S. application as filed on August 31, 2005 in the USPTO;
U.S. Assignment of Patent Application.

Lamson, I hope that you can find the time to review and execute the above-identified documents attached to this letter and return them to me as soon as is practicable.

Otherwise, as I indicated above, if for whatever reason you decline to execute these documents, then I would be personally very much obliged if you could return at least the further letter which I enclose using the postage-paid envelope provided.

Thank you very much for your time and consideration, and should you have any questions, please do not hesitate to contact me.

Very best regards,

Andrew N. Parfomak, Esq.

Enclosures – as indicated

cc: Robert A. Hyde, Esq./Reckitt Benckiser, Inc.

NORRIS McLAUGHLIN & MARCUS, PA
ATTORNEYS AT LAW
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VIA FEDERAL EXPRESS OVERNIGHT SERVICE, SIGNATURE REQUIRED

March 31, 2006

Mr. Lamson Nguyen
278 Maple Avenue
Somerset, New Jersey 08873

I, Lamson Nguyen, acknowledge that I have received the following documents in a letter dated January 27, 2006 from Andrew N. Parfomak, Esq. acting on behalf of Reckitt Benckiser, Inc.

These documents include:

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U.S. Assignment of Patent Application.

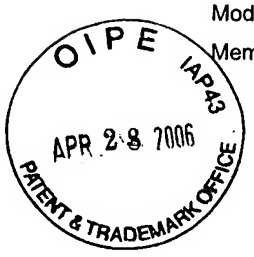
I have reviewed the same, however I decline/refuse to execute these documents having been transmitted to me.

_____ Date: _____
Lamson Nguyen

FedEx Express
Customer Support Trace
3875 Airways Boulevard
Module H, 4th Floor
Memphis, TN 38116

U.S. Mail: PO Box 727
Memphis, TN 38194-4643

Telephone: 901-369-3600



04/27/2006

Dear Customer:

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Status:	Delivered	**Delivery location:**	278 MAPLE AVENUE
Signed for by:	M.MAI	**Delivery date:**	Apr 3, 2006 10:04
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Tracking number:	791428486059	**Ship date:**	Mar 31, 2006
		Weight:	2.0 lbs.

Recipient:
Lamson Nguyen
278 Maple Avenue
Somerset, NJ 08873 US

Shipper:
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NORRIS MCLAUGHLIN & MARCUS PA
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18th Floor
NEW YORK, NY 10022 US

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VIA FEDERAL EXPRESS OVERNIGHT SERVICE,, SIGNATURE REQUIRED

April 7, 2006

Mr. Lamson Nguyen
278 Maple Avenue
Somerset, New Jersey 08873

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U.S. Assignment of Patent Application.

Reckitt Benckiser file 11593D3 US; NMM file 102792-481

U.S. Combined Oath, Declaration and Power of Attorney, having affixed there to a copy of the U.S. application as filed on August 31, 2005 in the USPTO;
U.S. Assignment of Patent Application.

Lamson, I hope that you can find the time to review and execute the above-identified documents attached to this letter and return them to me as soon as is practicable.

Otherwise, as I indicated above, if for whatever reason you decline to execute these documents, then I would be personally very much obliged if you could return at least the further letter which I enclose using the postage-paid envelope provided.

Thank you very much for your time and consideration, and should you have any questions, please do not hesitate to contact me.

Very best regards,

Andrew

Andrew N. Parfomak, Esq.

Enclosures–as indicated

cc: Robert A. Hyde, Esq./Reckitt Benckiser, Inc.

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April 7, 2006

Mr. Lamson Nguyen
278 Maple Avenue
Somerset, New Jersey 08873

I, Lamson Nguyen, acknowledge that I have received the following documents in a letter dated January 27, 2006 from Andrew N. Parfomak, Esq. acting on behalf of Reckitt Benckiser, Inc.

These documents include:

Reckitt Benckiser file 11006P1; NMM file 102792-008

U.S. Combined Oath, Declaration and Power of Attorney, having affixed thereto a copy of the application as filed on September 29, 2004 in the USPTO;
U.S. Assignment of Patent Application.

Reckitt Benckiser file 11256P3 US; NMM file 102792-133

U.S. Combined Oath, Declaration and Power of Attorney, having affixed there to a copy of the U.S. application as filed on December 21, 2005 in the USPTO;
U.S. Assignment of Patent Application.

Reckitt Benckiser file 11593D3 US; NMM file 102792-481

U.S. Combined Oath, Declaration and Power of Attorney, having affixed there to a copy of the U.S. application as filed on August 31, 2005 in the USPTO;
U.S. Assignment of Patent Application.

I have reviewed the same, however I decline/refuse to execute these documents having been transmitted to me.

_____ Date: _____
Lamson Nguyen

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COMBINED OATH, DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe that I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

CLEANING APPARATUS AND METHOD FOR USING THE SAME

the specification of which has been filed on September 29, 2004 in the U.S. Patent and Trademark Office as a 371 of PCT/GB03/01449.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

I hereby claim foreign priority benefits under title 35, U.S.C. §119 of any foreign application(s) for patent or inventor certificates listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application			Priority Claimed	
0207710.5	Great Britain	03/04/2002	[X]Yes	[ ] No
(Number)	(Country)	(Day/Month/Year Filed)		
0223509.1	Great Britain	10/10/2002	[X]Yes	[ ] No
(Number)	(Country)	(Day/Month/Year Filed)		

I hereby claim to benefit under 35 U.S.C. §119 (e) of any United States Provisional application(s) listed below:

US Provisional Application Serial No.:	Filing Date:

I hereby claim the benefit under Title 35, U.S.C. §120 of any United States application(s) listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, U.S.C. §112, I acknowledge the duty to disclose maternal information is defined in Title 37, Code of Federal Regulations §1.56(a) which occurred

between the filing date of the prior application and the national or PCT international filing date of this application:

US Patent Application:	Filing Date:	Status:

I hereby declare that all statements made herein of my own knowledge or true and that all statements made on information and belief are believed to be true; and further that these statements for made with the knowledge that willful false statements and like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Power of Attorney: As a named inventor, I hereby appoint

[X] Practitioners Associated with the Customer Number: 27389

as my/our attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from the Assignee of this application as to any action to be taken in the United States Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned.

SEND ALL CORRESPONDENCE TO:	DIRECT TELEPHONE CALLS TO:
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Inventor's Signature	
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Inventor's Citizenship:	Great Britain
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Post Office Address:	-same as residence address-

Attorney Docket. No.: 102792-008 (11006P1 US)

ASSIGNMENT

In consideration of One Dollar ($1.00) in hand paid and other good and valuable considerations, the receipt of which is hereby acknowledged, the undersigned [hereinafter (collectively) named "Assignor"] hereby assigns and transfers to

RECKITT BENCKISER (UK) LIMITED
103-105 Bath Road
Slough
Berkshire
SL1 3UH
UNITED KINGDOM

, a Great Britain corporation (hereinafter named "Assignee"), its successors, legal representatives and assigns, the entire right, title and interest in and to Assignor's application for Letters Patent of the United States, Application Serial No. 10/509,555, filed on September 29, 2004 entitled

CLEANING APPARATUS AND METHOD FOR USING THE SAME

and to Assignor's entire right, title and interest in any and all inventions, whether joint or sole, disclosed in said application for Letters Patent, and in any and all divisional or continuation or renewal applications that may be filed for United States Letters Patent for any and all of said inventions, and in and to any and all patents that may be granted on the foregoing applications and any reissue or extension thereof.

The Assignor hereby authorizes and requests the Commissioner of Patents to issue any and all of said Letters Patent to said Assignee.

For said consideration, the Assignor hereby agrees upon the request of said Assignee, its successors, legal representatives or assigns, to execute any and all United States divisional, continuation and renewal applications for said invention, and any and all necessary oaths, supplemental oaths or declarations or supplemental declarations or affidavits relating thereto, and any application for the reissue or extension of any United States Letters Patent that may be granted upon said application that said Assignee, its successors, legal representatives or assigns may deem necessary or expedient.

For the said consideration the Assignor further agrees upon the request of said Assignee, its successors, legal representatives or assigns, in the event of said application or any division thereof, or Letters Patent issued thereon or any reissue or application for the reissue thereof, becoming involved in interference, to cooperate to the best of the ability of the Assignor with said Assignee, its successors, legal representatives or assigns in the matters of preparing and executing the Preliminary Statement and giving and producing evidence in support thereof, the Assignor hereby agreeing to perform upon such request, any and all affirmative acts necessary to obtain said Letters Patent and vest all rights therein hereby conveyed in said Assignee, its successors, legal representatives or assigns as fully and entirely as the same would have been held and enjoyed by the assignor if this assignment and sale had not been made.

Assignor hereby binds himself, his heirs, legal representatives, administrators, and assigns properly to execute without further consideration, any and all applications, petitions, oaths, assignments or other papers and instruments which may be necessary in order to carry into full force and effect the sale, assignment and transfer hereby made, or intended or agreed to be made.

And for said considerations, the Assignor hereby assigns to said Assignee, its successors, legal representatives and assigns, the entire right, title and interest in said invention or improvement for any and all foreign countries and agrees upon the request of said Assignee, its successors, legal representatives or assigns to execute any and all documents that shall be required of the Assignor to be executed in connection with any and all applications for foreign Letters Patent therefor, including the prosecution thereof, and to execute any and all documents necessary to invest title in said foreign applications and patents in said Assignee, its successors, legal representatives or assigns.

Signature: _____ Date: _____
Charles ASHLEY

Signature: _____ Date: _____
Lino FERRI

Signature: _____ Date: _____
Carol Ann BELANSKY

Signature: _____ Date: _____
Ian James CORKHILL

Signature: _____ Date: _____
Michael David LOVE

Signature: _____ Date: _____
Tor ALDEN

Signature: _____ Date: _____
Lamson NGUYEN

Signature: _____ Date: _____
Diane NEIMAN

Signature: _____ Date: _____
Leonard SPITZER

Signature: _____ Date: _____
John Eugene STUDER

Signature: _____ Date: _____
Alan James THOMAS

Signature: _____ Date: _____
Jeanne Marie WELLER

Signature: _____ Date: _____
Carl DIBNAH

CLEANING APPARATUS AND METHOD FOR USING THE SAME

The present invention relates to cleaning apparatus, and methods. In particular, the present invention relates to cleaning apparatus and methods which are in certain preferred embodiments particularly suitable for cleaning lavatories, sanitary appliances as well as plumbing fixtures and other hard surfaces.

Brushes are notoriously old articles which are known to facilitate the cleaning of surfaces, and lavatories, sanitary appliances as well as plumbing fixtures may be effectively cleaned brushes. Alternatively, chemical cleaning compositions which typically include one or more active agents such as cleaning agent, disinfecting agent, fragrance agent, and/or an anti-lime scale agent or a mixture of two or more of such agents are also known to be useful. It is also known to use a combination of physical and chemical cleaning. Good results are expected when a chemical cleaning composition in used in conjunction with a brush, as the brush provides good abrasive contact with a soiled lavatory, sanitary appliance, plumbing fixture or for that matter any other surface particuarly hard surfaces, which abrasive contact typically loosens stains and soils on the surface(s) which can be more readily treated by the chemical cleaning composition. The art has suggested various articles of manufacture which suggest such a combination. For example, EP 123152A describes a system comprising a cartridge having a cleaning brush attached thereto, and wherein a cleaning fluid is discharged from a flexible bag through the cleaning brush. Further devices known to the art include those described in the following documents: GB 2342403; WO 01/45533; US 5984555; US 4534669; DE 2331694; DE 2040496; DE 1912606; GB 2342403; EP 1190644; DE 20101259; DE 29918902; DE 2331694; as well as DE 3104734.

Such combination cleaning device s however are typically poorly received by consumers as they typically suffer from a number of disadvantages which results in low consumer satisfaction which in turn limits their actual use. Such combination cleaning devices are often perceived to be ineffective in providing a desired cleaning and/or sanitizing effect. One particular shortcoming is in the messiness of using such devices, or the difficulty in dipsening a chemical

cleaning compositions associated with such combination devcies. Such devices are typcially often unwieldy in use.

Broadly recited, it is amongst the objects of the present invention to provide a combination cleaning device useful in the cleaning of hard surfaces such as non-porous surfaces including glass, metals, ceramic surfaces, and the like as well as soft surfaces such as textiles, carpets, upholstery, garments and the like which combination cleaning device includes a body, and a cleaning head particularly an abrasive cleaning head such as a brush, abrasive pad or other physical abrasive means which is used to contact a surface requiring cleaning and/or disinfecting treatment, and which combination cleaning device further includes a chemical cleaning composition which may optinally also provide a sanitizing benefit, which combination cleaning device is manually graspable usually at the body thereof, by a user of the device. In paricularly preferred environments the chemical cleaning composition is provided in a vessel, which may be a non-pressurized, or alternately may be a pressurized or pressurizable vessel which is at least partially enclosed within the body of the combination cleaning device whererin the user of the device dispenses the cleaning composition which is expelled from the vessel and then to the cleaning means. Desirably the vessel includes an interlocking device mounted on said vessel or within the body of the combination cleaning device, or may be present on both the vessel and body, which must be properly engaged in order to permit dispensation of the cleaning composition from the vessel when the combination cleaning device is used.

Further objects of the invention include methods for treating a hard or soft surface in need of a cleaning and/or disinfecting treatment which method contemplates providing a combination cleaning device including a cleaning head and a chemical cleaning composition provided in a vessel, particularly a pressurized or pressurizable vessel, dispensing a quantity of the chemical cleaning composition to the cleaning means, and subsequently contacting the cleaning head with the surface in need of treatement.

Still further objects of the invention relate to methods for manufacturing a combination cleaning device as described herein.

According to a first aspect of the present invention there is provided a combination cleaning device in the form of a lavatory brush comprising a body which also functions as a handle graspable by a user of the device, and as a cleaning head, a brush head having a proximal end depending from the body and a distal end, the body having a cavity for accommodating a

chemical cleaning composition and means for impelling chemical cleaning composition along a conduit from the body to the brush head, the brush head having bristles and having an outlet for chemical cleaning composition, proximate to the distal end thereof. By "proximate" when referring to the outlet(s), is to be understod that mean that the outlet is at the distal end of the brush, or in the region of the brush head near to the distal end of the brush. . Preferably the brush head has only one outlet at the distal end outlet(s). According to one particularly preferred embodiment of the first aspect of the invention the outlet, or each outlet present in the brush head is arranged to issue cleaning composition without contacting the bristles of the brush head.

According to a second aspect of the present invention there is provided a combination cleaning device comprising a body which also functions as a handle graspable by a user of the device, and which contains a vessel containing a cleaning composition, means for impelling chemical cleaning composition along a conduit from the body to a cleaning head, wherein the cleaning head includes at least one outlet for the cleaning composition, and wherein the cleaning head may be permanently affixed to the body, or which may be removably affixed to the body or which may be interchanged by the user of the combination cleaning device. Said aspect of the invention contemplates for the subsitution of a variety of different cleaning heads which may be affixed to the body and each of which may be used to form a combination cleaning device. Each of the different cleaning heads desirably include a proximate end which may be removably attached to the body of the combination cleaning device either directly or by means of an intermediate linking member, as well as a conduit and at least one outlet for the chemical cleaning composition at the distal end of the cleaning head. Specific examples of cleaning head include: a brush head comprising one or more tufts of bristles, wherein said brush head and bristles may be formed according to any of a number of configurations; a cleaning head which includes a pad of an non-abrasive or abrasive material such as an abrasive pad; a cleaning head which includes a surface onto which may be removably affixed a woven or non-woven wipe or other generally planar sheet material which may provide an abrasive effect, which wipe or generally planar sheet material may be a single-use wipe or which may be used a number of times before being removed and discarded. The cleaning head may include any combination of such materials as recited above. The various forms of cleaning heads may have one or more outlets at a distal end thereof which permits for the egress of the cleaning composition from the cleaning head. In certain preferred embodiments the cleaning head has a plurality of outlets.

According to other preferred embodiments the cleaning head comprises a single outlet at the distal end thereof.

A third aspect of the present invention provides a combination cleaning device comprising a body adapted for containing a vessel containing a quantity of a cleaning composition, said body which also functions as a handle graspable by a user of the device, and a cleaning head wherein the cleaning head may be permanently affixed, or which may be removably affixed to the body and which may be interchanged by the user of the combination cleaning device, said combination cleaning device which further comprises mounted on said vessel or within said body, or parts of which may be present on both the vessel and body, which interlocking device must be properly engaged in order to permit egress of the cleaning composition from the vessel when the combination cleaning device is used.

In any of the aspects of the invention, preferably the cleaning composition is contained in vessel, e.g., a canister within the body of the combination cleaning device, and most preferably the vessel is removable from within the body and is replaceable within the body.

In any of the aspects of the invention, the vessel need not be totally obscured from view when inserted within the body, rather it may be partially visible when installed within the body of the combination device taught herein. For example, a portion of the body may be omitted, so to form a viewing window which would permit the user to view at least a part of the vessel when the vessel is installed in the body. Such would be particuarly convenient wherein it would be advatageous for the consumer to view a label or other identifying marking(s) on the vessel when the combination device is assembled and ready for use as described hereinafter.

The vessel according to the invention includes a closure or other form of valve which may be used to limit the egress of cleaning composition from the vessel. According to certain embodiments the vessel is vented by a one-way valve. Preferably the one-way valve is located within the body of the combination cleaning device. Preferably, this one-way valve is located such that it does not become submerged during use of the combination cleaning device. In certain embodiments, the vessel is preferably vented to allow for the ingress of air as cleaning composition is impelled from the combination cleaning device. Alternately and preferably the vessel may be pressurized, such that fluid exiting the vessel cannot be retracted into the vessel once it it dispensed.

The cleaning composition necessarily is impelled from the vessel in order to dispense the cleaning composition through the cleaning head in the device according to the invention. A variety of means, and techniques may be used to effectively dispense the cleaning composition from the vessel.

Desirably, the means for impelling are operable by one hand. Preferably, the means for impelling are operable by a hand which is grasping and supporting the body of the combination cleaning device. Preferably, the means for impelling are operable by the (human) hand and/or is actuated by the (human) hand which is grasping and supporting the body of the combination cleaning device without adjustment of the position of said hand on the combination cleaning device.

One means for impelling the cleaning composition contemplates the use of an electrical motor which is contained in the body of the combination cleaning device, which motor is actuated by an electrical contact or electrical switch which, when engaged closes a circuit which transmits electrical current from a battery/battery which operates the motor. The motor engages one or more suitable mechanical elements which, when driven by the motor, cause the cleaning composition to be impelled from the inventive device. Any suitable mechanical elements may be used to achieve this effect and such mechanical elements. By way of non-limiting example suitable mechanical elements include one or more of the following combinations of mechanical elements:

(a) a gear mounted on the shaft of the electrical motor engages a piston connected to a piston rod, said piston rod having a rack of mating gear teeth which engage the gear mounted on the motor shaft, such that when the motor is engaged the piston is urged against the vessel contained in the body which impels the release of the cleaning composition;

(b) a threaded gear on the shaft of, or a threaded shaft of the electrical motor engages a piston connected to a piston rod, wherein the piston rod including a threaded portion which engages the threaded gear/threaded shaft of the motor, such that when the motor is engaged the piston is urged against the vessel contained in the body which impels the release of the cleaning composition;

(c) a rotatable lobed cam or rotatable wheel eccentrically mounted on the shaft of the electrical motor, such that when the motor is actuated, the rotating lobed cam or wheel is urged against the vessel contained in the body which impels the release of the cleaning composition;

(d) a rotatable lobed cam or rotatable eccentric wheel is mounted on the shaft of the electrical motor, which is used in conjuncation with a mechanically opearable pump having a pump-arm (trigger) such that when the motor is actuated, the rotating lobed cam or wheel is urged against the pump-arm of the mechanically operable pump which operation impels the release of the cleaning composition;

Of the aforesaid combinations of mechanical elements with electrical motors, those described in (a) and (b) in certain embodiments (c) are particularly useful when the vessel is an aerosol canister or other pressurized vessel, while those described in (d) and in certain embodiments of (c) are particulary useful with non-pressurized vessels.

The electrical motor may be any which is suitable to provide sufficient force, however low voltage electrical motors which may be operated from a battery source are conveniently and advantageously used. The battery source may be single-use non-rechargeable batteries, or may be rechargeable batteries, including appropriately sized lithium ion, and nickel cadium based batteries. While the use of batteries are preferred as such pemits for the convenient and mobile use of the combination cleaning device, it is contemplated that the motor may also be powered by connection to a non-portable power source, e.g., a suitable transformer attached to the electrical mains of a building.

A further means for impelling the cleaning composition contemplates the use of an electrical solenoid which is contained in the body of the combination cleaning device, which solenoid is actuated by an electrical contact or electrical switch which, when engaged closes a circuit which transmits electrical current from a battery/battery which operates the solenoid. The plunger of the solenid may conveniently engage one or more suitable mechanical elements which, when driven by the solenoid, cause the cleaning composition to be impelled from the inventive device. Alternately the plunger of the solenid may engage a portion of a vessel, particularly a aerosol canister or other pressurized vessel and urge it towards the distal end of the body of the combination cleaning device, and impel the cleaning composition from the vessel. Such a solenoid may be any which is found to be effective, but is desirably one which may be operated using a low voltage source, such as may be provided by batteries or a transformer such as described above with reference to the use of an electrical motor.

A still further means for impelling the cleaning composition contemplates the use of an electrically operated pump which is contained in the body of the combination cleaning device,

which pump is actuated by an electrical contact or electrical switch which, when engaged closes a circuit which transmits electrical current from a battery/battery which operates the pump. Such means is particularly adapted for use in dispensing cleaning composition from a non-pressurized vessel.

A further means for impelling the cleaning composition which does not require a motor or electrical current contemplates the use of an engageable shaft connected at one end thereof to a piston, and a manually operable trigger which, when operated interacts with the engageable shaft to advance it in linear direction. An embodiment of such means may be, e.g., a flexible shaft having a rack of teeth, and an engagement gear or engagement pawl associated with the trigger of the combination cleaning device. In operation, depressing the trigger enages the engaement gear, or pawl with one or more of the teeth of the shaft, causing the rack attached at one end to a piston forward. This motive force may be used to expel a cleaning composition from any of a variety of vessels which may be used with the present invention, particulary with non-pressurized vessels such as bellows bottles, or other collapsible or manually deformable vessels.

One preferred means for impelling the cleaning composition comprises the use of a manually-operable pump, wherein the pump is operable by the user. Desriably such a manually operable pump only permits for the egress of chemical cleaning composition from the vessel when it is operated or otherwise actuated.

An alternate preferred means for impelling the cleaning composition comprises the use of a vessel which is manually deformable. The user utilizing the combinantion device, via pressure such as squeezing pressure exerted by the user, cases the deformation of the vessel which impels the egress of the cleaning composition containined within the vessel.

A still further alternate preferred means for impelling the cleaning composition comprises the use of a deformable vessel which however is deformed by means other than that directly exerted by a user, for example, a pressurized or pressurizable vessel which has a non-deformable exterior such as a metal canister, said vessel which contains a first plenum or a deformable bag containing the cleaning composition, and a second plenum which may be the intermediate volume between the first plenum and remaining interior volume of the vessel. In such a preferred embodiment it is contemplated that pressurization of, or an increase in the volume of the second

plenum causes a reduction in the volume of the first plenum which causes the egress of the cleaning composition from the vessel.

An alternate preferred means for impelling the cleaning composition comprises the use of a vessel which contains two or more separate chemical cleaning compositions which are contained in a vessel (or plurality of vessels) which contain the two or more chemical cleaning compositions separate from one another until the said chemical cleaning compositions are expelled from the vessel wherein they may intermix. Such may be particularly advantageous wherein the cleaning composition is stably stored and contained in two or more separate plenums within a vessel, or in two or more separate vessels but when mixed form an active cleaning and/or disinfecting composition. One example of such a cleaning composition having such properties are two-part compositions containing a bleach constitutent in one of said two parts, and a bleach activiator constituent in the other of said two parts which, when intermixed, form a highly effective bleach composition which may have both cleaning efficacy and/or sanitizing efficacy.

A particularly preferred and effective example of a vessel which may be used in the combination cleaning device according to the invention is a pressurized aerosol canister which comprises a pressurizable canister, and a manually actuated valve which, when actuated, releases its contents under pressure.

A further effective example of a vessel which may be used in the combination cleaning device is a known as an "Atmos" vessel, which may be generally described as comprising a flexible inner bladder adapted to contain a quantity of a material, such as the cleaning composition according to the invention, which inner bladder is contained within an elastomeric sleeve. The inner bladder may be filled and used to contain the cleaning composition wherein it is maintained in a pressurized state due to the mechanical compressive force of the inner bladder, but primarily due to the mechanical compressive force of the elastomeric sleeve. The Atmos vessel further comprises a valve or other outlet or valve which can be acutated in order to permit the egress of its contents under pressure.

A still further effective form of a vessel which may be used in the combination cleaning device is a bellows bottle. Such bellows bottles may be generally described as a collapsible vessel which may be compressed, typically substantially only in one direction, usually in the vertical direction. Typically a series of preformed pleats or ribs are formed in the bellows bottle

such that when it is compressed, the wall(s) of the bellows bottle folds in the direction of the pleats or ribs, and simultaneously the interior volume of the bellows bottle is diminished. Typically, when used in the combination cleaning device taught herein the cleaning composition may be maintained in an unpressurized state, as pressurization of the contents of the bellows bottle occurs when the bellows bottle is compressed and its interior volume diminished. Of course, a a valve or other outlet or valve which can be acutated is typically present with the bellows bottle in order to permit the egress of its contents under pressure.

Other forms of vessels which may be used with the combination cleaning device are described with reference to the Figures. It is to be understood varous forms of vessels may be used with different configurations of the combination cleaning device and thus satisfy the objectives of the present invention.

Most preferably, the means for impelling are manually operated. Preferably, the means for impelling are actuated by a user's own force.

According to a yet further aspect of the invention there is provided a method for cleaning surface such as hard surface or a soft surface, which method comprises the steps of:

(a) providing a combination cleaning as described herein wherein said device includes a vessel contining a cleaning composition; (b) impelling the cleaning composition to exit from the vessel, and pass through the body to one or more outlets at the brush head, through the outlet proximate to the distal end of the brush head and directing chemical cleaning composition passing through the outlet onto a surface to be cleaned; and (c) using the bristle brush, head in combination with the chemical cleaning composition to clean the surface, to be cleaned.

For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings in which:

Figure 1 shows a side view of an embodiment of the invention;

Figure 2 shows a back view of the embodiment of Figure

Figure 3 shows a front perspective view of the embodiment of Figure 1;

Figure 4 shows an exploded perspective view of the embodiment of Figure 1;

Figure 5 shows a side view of components for use in. the embodiment of Figure 1;

Figure 6 shows a perspective view of the embodiment of Figure 1 in use;

Figure 7 shows a perspective view of the embodiment of Figure 1 in combination with a stand;

Figure 8 shows an exploded perspective view of a further embodiment of the invention;

Figure 9 shows a perspective view of a canister being fitted to the embodiment of Figure 8 in use;

Figure 10 shows a perspective view of the embodiment of Figure 8 in use;

Figure 11 shows an exploded perspective view of still further embodiment of the invention;

Figure 12 shows a perspective view of a canister being fitted to the embodiment of Figure 11 in use;

Figure 13 shows a perspective view of the embodiment of Figure 11 in use;

Figure 14 shows an exploded perspective view of a yet further embodiment of the invention;

Figure 15 shows a perspective view of a canister being fitted to the embodiment of Figure 14; and

Figure 16 shows a perspective view of the embodiment of Figure 14 in use.

Figure 17 shows a side view of a further embodiment of the invention; and

Figure 18 shows a cross-section view along line A-A of Figure 17.

Figure 19 shows an exploded view of the device shown in Figures 17 and 18.

Figure 20 shows a further embodiment of a combination cleaning device according to the present invention.

Figure 21 illustrates an embodiment of an interlocking device adapted to be mounted upon a vessel according to the present invention.

Figure 22 illustrates in a cross-sectional view the arrangment of the interlocking device according to Figure 21 mounted on an aerosol canister, and engaged within the body of a combination cleaning device according to the invention.

Figure 23 illustrates an alternative embodiment of an interlocking device adapted to be mounted upon a vessel according to the present invention.

Figure 24 illustrates in a cross-sectional view the arrangment of the alternative interlocking device according to Figure 23 mounted on an aerosol canister, and engaged within the body of a combination cleaning device according to the invention.

Figures 25 depicts an embodiment of a cleaning head according to the invention which may be used to form a combination cleaning device

Figures 26A through 26E depict alternative embodiments of a cleaning head according to the invention. which may be used to form a combination cleaning device.

Figure 27 depicts an embodiment of the combination cleaning device according to the invention which includes a rotatable wheel eccentrically mounted on the shaft of the electrical motor, such that when the motor is actuated, the rotating lobed cam or wheel is urged against the vessel contained in the body which impels the release of the cleaning composition.

Figure 28 depicts an embodiment of the combination cleaning device according to the invention which includes an electrical solenoid which is contained in the body of the combination cleaning device, which, when actuated engages a portion of a vessel, particularly a aerosol and urges it towards the distal end of the body of the combination cleaning device, and impel the cleaning composition from the vessel.

Figure 29 depicts an embodiment of the combination cleaning device according to the invention which includes a a gear mounted on the shaft of the electrical motor engages a piston connected to a piston rod, said piston rod having a rack of mating gear teeth which engage the gear mounted on the motor shaft, such that when the motor is engaged the piston is urged against the vessel contained in the body which impels the release of the cleaning composition.

Figure 30 depicts an embodiment of the combination cleaning device according to the invention which includes an engageable shaft connected at one end thereof to a piston, and a manually operable trigger which, when operated interacts with the engageable shaft to advance it in linear direction, and which urges the cleaning composition from the vessel.

Figures 31A and 31B illustrate alternate mounting devices for remoably mounting cleaning heads upon the body of a combination cleaning device.

Figure 32 illustrates an alternate mounting device for remoably mounting cleaning heads upon the body of a combination cleaning device.

Referring now to Figures 1 to 7 therein is shown an embodiment of the combination cleaning device according to the invention in the form of a lavatory brush 100 comprising a bristle brush head 10 and a handle 20. The bristle brush head 10 exemplifies one form of a cleaning head according to the invention, while the handle 20 exemplfies one form of a body according to the invention. The bristle brush head 10 comprises a proximal end 12, a distal end

14, bristles 16 and an outlet 18. The handle 20 comprises a neck 22, a body 24, a lid 26 and a trigger 28. The neck 22 and body 24 of the handle 20 are formed from two conjoined sections; a front section 30 and a rear section 32. The proximal end 12 of the bristle brush head 10 is attached to a distal end'of the neck 22. The lid 26 is movable between a first position in 20 which it closes an aperture defined by a proximal end of the body 24 of the handle 20 and a second position in which the aperture is unobstructed. The lid 26 is hinged to move from the first position to the second position by hinge means (not shown). The lid 26 is secured in the first position by an interference fit joint. A recess 23 is provided in the body 24 of the handle 20 to assist the user in moving the lid 26 from the first position to the second position.

The body 24 of the handle 20 is shaped to allow it to be easily grasped by a user. The body 24 of the handle 20 is also shaped to allow it to contain a canister 34 of chemical cleaning composition. The canister 34 exemplifies a vessel according to the invention. The canister 34 is manufactured from a transparent plastics material, although it may also be produced from an opaque material such as a metal.

A proximal end of the canister 34 comprises a vent 36. The vent 36 comprises a one way valve allowing air to pass from the atmosphere into the canister 34 when the air space within the canister 34 is increased, during operation. Neither air nor chemical cleaning composition from within the canister 34 can pass through the vent 36 to exit the canister 34.

A distal end of the canister 34 comprises a pump 38. The pump 38 can be actuated to draw chemical cleaning composition from within the canister 34. Actuation of the pump 38 reduces the pressure within the canister 34 drawing air from the atmosphere through the vent 36 into the canister 34. When the pump 38 is not being actuated no chemical cleaning composition can exit the canister 34. The pump 38 may be formed of an assemble of discrete components which cooperate to provide a pumping effect when operated.

Within the lavatory brush 100 is contained a trigger mechanism 36 and a conduit 42, which in this embodiment is a passage generally concentric with the neck 22 and with the bristle brush head 10 and which passes therethrough where it terminates at an orifice, or opening at the distal end of the bristle brush head 10. The trigger mechanism 40 cooperates with the trigger 28 to allow a user to impel chemical cleaning composition contained within the canister 34 along a conduit 42 to exit the bristle brush head 10 through the opening 18 at the distal end 14. Preferably the chemical cleaning composition exiting the opening 18 does so without contacting

the bristles. Desirably, the cleaning composition exits the combination cleaning device as a jet able to impinge upon a lavatory surface, particularly a toilet bowl surface.

In use, a vessel, or canister 34 containing a cleaning composition is inserted into the handle 20 through the aperture defined by a proximal end of the body 24 of the handle 20 when the aperture is unobstructed by the lid 26. The lid 26, is then replaced to, improve the aesthetic appeal of the lavatory brush 100, to prevent dirt from entering the handle 20 and to retain the canister 34 in place. The pump 38 located within the handle 30, communicating with the conduit 42 and the trigger mechanism 40. A user grasps the body 24 of the handle 20 and can conveniently use an index finger to actuate the trigger 28. Symmetry of the illustrated device facilitates use by left and right-handed users. Actuation of the trigger 28 transmits force through the trigger mechanism 14 to the pump 38. Upon actuation, the pump, 38 impels chemical cleaning composition from within the canister 34 into the conduit 42. Further actuation of the pump 38 impels chemical cleaning composition along the conduit 42 and through the opening 18 and the distal end of the bristle brush head 10.

A transparent portion 33 of the rear section 32 allows the level of chemical cleaning composition within the canister 34 to be easily observed by the user, although not all embodiments of the combinaton cleaning device include a transparent portion in the body of the combination cleaning device.

The user may operate the combination cleaning device according to any of a number of cleaning methods made possible by the use of the lavatory brush 100. The user can spread a layer of chemical cleaning composition from the lavatory brush 100 over surfaces to be cleaned by first actuating the trigger 28 before contacing the treated surface with the bristles 16 of the bristle brush head 10. Alternatively, the user can simultaneously brush and apply chemical cleaning composition to a surface being treated. Of course, the combination cleaning device can be used without chemical cleaning composition if desired. The location of the outlet 18 proximate the distal end 14 of the bristle brush head 10 allows the user to accurately judge the amount of chemical cleaning composition dispensed. Also, the user can accurately direct the chemical cleaning composition to 5 where it is required. The positioning of the outlet 18 also usuallly helps to maintain the bristles 16 free from a build-up of unused chemical cleaning composition.

The pump 38 is preferably designed to avoid sucking any chemical cleaning composition, air or other fluid back into the canister 34. However, to further reduce this possibility a one-way valve (not shown) may be located in the conduit 42 immediately within the outlet 18. As the vent 36 is situated within the body 24 of the handle, it is unlikely to become submerged or exposed to other fluids. The vent 36 will therefore in use allow only air to pass through it and enter the canister 34.

As the pump 36 only dispenses chemical cleaning composition when it is being actuated by a user, the canister 34 can be swapped for one containing an alternative chemical cleaning composition without dripping or making other undesirable mess. Similarly, a canister 34 that is all but empty will not drip or leak when removed for replacement.

Figure 7 shows the lavatory brush 100 in combination with a stand 200. The stand 200 engages the lavatory brush 100 at an interface region between the neck 22 and the body 24 of the handle 20. The stand 200 allows the lavatory brush 100 to be conveniently and hygienically stored.

Referring now to Figures 8 to 10 there is shown a further combination cleaning device according to the present invention, again in the form of a lavatory brush 101. Lavatory brush 101 comprises a different canister 35 than the canister 34 of Figures 1 to 7, and includes a number of other differences in order to accommodate 5 the canister 35. Where meaningful, like reference numerals have been used for corresponding features between Figures 1 to 7 and Figures 8 to 10.

The handle 20, exemplifying a "body" according to the invention comprises an elongate section of a 10 plastics material attached to the proximal end 12 of the bristle brush head 10 through a collar 21. The bristle brush head 10 exemplifies a further embodiment of a "cleaning head" according to the present invention. A proximal end 23 of the handle 20 comprises a pair of resilient projections 25 separated by a recess 27.

The canister 35 comprises a resilient envelope having a pair of diametrically opposed projections 37 extending from an upper region of its exterior surface. The canister 35 comprises a blow moulded thermoplastics envelope. The canister 35 locates within the handle 20 and is held in place by a snap fit joint formed by engagement of the projections 37 with the recess 27. The canister 35 exemplifies an alternate form of a "vessel" according to the present invention.

To impel chemical cleaning composition from the canister 35 the user exerts manual pressure and squeezes the upper region of the canister 35. The user 25 may further manually squeeze the resilient projections 25 to compress the canister 35 therebetween. The canister 35 is a manually deformable vessel.

With attention now to Figure 8 may be seen a an embodiment of a simple one-way valve which comprises a check-ball 18A located in the path of the conduit and adjacent to the outlet 18. As the vessel 35 is resilient, and dispenses chemical cleaning composition only when it is deformed by manual squeezing, the check-ball 18A permits only for the egress of chemcial cleaning composition from the combination cleaning device, and not for the ingress of chemical cleaning composition into the canister 35 of he device. Indeed such a check-ball 18A or a similar check ball may be incorporated into any embodiment of the invention, and provide a useful anti-retraction feature in ensuring that fluid is not sucked back into the combination cleaning device described herein.

Referring now to Figures 11 to 13 there is shown still further embodiment of the combination cleaning device of the invention, again in the form of a lavatory brush 102. The lavatory brush 102 is adapted to receive a canister 35A in the form of a deformable tube. The canister 35A is at least partially located within the handle 20 and is held in place by engagement with the lid 26. The lid 26 comprises a distal projection having an aperture 27A defined therein. The aperture 27A engages with a projection 37A extending from an upper region of the interior surface of the handle 20. The lid 26 is held in place by a snap-fit joint formed by engagement of the projection 37A with the aperture 27A. In this embodiment the handle 20 exemplfies a body, the bristle brush head 10 exemplifies a cleaning head and the canister 35A exemplifies a vessel, particularly a manually deformable vessel according to the present invention.

To impel chemical cleaning composition from the canister 35A the user manually squeezes and deforms the upper region of the canister 35A through an open section of the handle 20 as can be seen in Figure 13.

Referring now to Figures 14 to 16 there is shown a still further embodiment of a combination cleaning device according to the invention, again in the form of a lavatory brush 103. The handle 20 of the lavatory brush 103 is similar to that of the lavatory brush 101 of Figures 8 to 10, and handle 20 again exemplifies a body of the combination cleaning device according to the invention. The handle 20 of the lavatory brush 103 comprises a pair of resilient

projections 25B separated by a recess 27B. The recess 27B is occupied by resiliently flexible membrane. The membrane prevents dirt from accumulating in the recess 27B and also prevents a user's hand from becoming trapped between the projections 25B. The lavatory brush 103 also comprises a canister 35B which exemplfies a vessel according to the invention, as well as a cleaing head, exemplfied by the bristle brush head 10 illlustrated in Figures 14 – 16.

Referring now to Figure 17, there is shown one preferred combination cleaning device according to the invention, again in the form of a lavatory brush 300 comprising a brush head 320 and a body 310, adapted to contain a vessel which contains a chemcial cleaning composition. The brush head 320 exemplfies a further example of a cleaning head according to the invention, and the body 30 exemplifies a body of a combination cleaning device according to the invention. Brush head 320 comprises a proximal end 322, a distal end 324, bristles 326 and an outlet 328, and includes within a conduit 372 for conducting the cleaning composition which exits from the vessel when the lavatory brush 300 is used. The body 310 comprises a handle portion 302, having a proximal end 302A and a distal end 302B, as well as a body portion 312, having a proximal end 312A and a distal end 312B, a handle portion 302 and a body portion 312 being held together with ring 316. Ring 316 is connected to handle portion 302 at distal end 302B. Body 310 is formed by connecting distal end 302B of handle portion 302 to proximal end 312A of body portion 312 by interconnecting these parts and by use of engaging button 318. There are two engaging buttons (one opposite button 318 and not shown) but only one button 318 is sufficient To open brush 300, engaging button(s) 318 is (are)pushed and handle portion 302 can be removed, allowing access to the inner cavity of body portion 312. Then, an appropriate can 351 (as per Fig. 18) containing a chemical cleaning composition can be removed, when empty, and replaced with an appropriate replacement can. Can 351 exemplifies one form of a vessel according to the present invention.

Proximal end 302A of handle portion 302 further comprises a safety lock switch 330 and an actuating switch 332. Safety lock switch 330 and actuating switch are interconnected 10 (as shown in Figure 18) so as to provide a child safety locking system to prevent accidental discharge of the chemical cleaning composition. Such a safety lock switch and cooperating actuating lock switch may be included in any embodiment of the invention, and desirably are present in any embodiment of the invention, especially where the vessel containing the chemical cleaning composition is a pressurized vessel such as an aerosol canister.

Proximal end 322 of brush head 320 is attached to distal end 312B of body portion 312. As shown in Figure 18, there is fluid communcation through the brush head 320 at outlet 328 via a conduit (not shown.)

Figure 18 shows a cross-section of brush 300 shown in Figure 17 along section line A-A. Safety lock switch 330 is connected by spring 334, which is placed within spring holder 350, to actuating switch 332. When safety lock switch 330 is depressed, actuating switch 332 will be able to move, causing spring 334 to move together with spring holder 350. When spring holder 350 moves, face 354 (of spring holder 350) pushes against bottom rim 352 of can 351 (which can be, among others, either a traditional aerosol can where propellant and liquid are intermixed or be a system where the liquid is placed within a bag (plenum) which is then placed within a can and the area between the outer wall of the bag and the inner wall of the can (second plenum) is pressurized with a propellant (the so-called "bag-in-can" or "barrier pack" aerosol package). The bag is then pressurized but no propellant is expelled. Examples such cans are found in United States Patent Nos. 3,022,923; 3,109,463; 3,756,476; 3,788,521; 3,896,970; 3,929,132; 4,067,499; and 6,439,430). At the end opposite bottom rim 352 is mounting cup 358, which carries a valve assembly (whose construction is well known in the art) having valve 356, and can overcap 360 and actuator 364. Overcap 360 rests upon nib 375 which is molded into distal end 312B. Valve 356 is connected to opening 372 through opening 370 (which is mounted within adapter 362) such that it permits a liquid or aerosol foam to be discharged out of outlet 328. Adapter 362 can be molded into distal end 312B or can be a separate piece which fits within an appropriate opening within distal end 312B. Those in the art will recognize that valve 356 could be connected to one long tube that could extend from the can 351 all the way through the distal end of body portion 312B and through opening 372 until just rearward of the opening of outlet 328. When switches 330 and 332 are engaged, moving spring 334 and spring holder 350 against bottom rim 352 of can 351 as described above, can 351 will be urged forward and towards the distal end 312B of body portion 312. Such displacement of the can 351 causes actuator 364 to engage with overcap 360, causing valve 356 to open, thereby allowing liquid or aerosol to flow through the aforementioned openings and/or tubes and ultimately out of opening 328. When switches 330 and 332 are disengaged and returned to their original position, can 351 returns to its original position and actuator 364 disengages with overcap 360, causing valve 356 to close, and the egress of cleaning composition from the can 351 to cease.

In Figure 19 the components numbered within, the circles as shown correspond to the table set out below:

ITEM NO.	DESCRIPTION
1	HANDLE HALF-LEFT
2	SAFETY
3	EXTENSION SPRING
4	TRIGGER
5	HANDLE HALF-RIGHT
6	SLEEVE
7	52 mm STAINLESS STEEL AEROSAL CAN WITH CHIME ASSEMBLY
8	ACTUATOR VALVE
9	ACTUATOR GUIDE TUBE
10	BODY
11	BRUSH
12	CADDY CANISTER
13	CADDY BASE

Figure 20 shows a further embodiment of a combination cleaning device 400 according to the present invention. The combination cleaning device 400 comprises a brush head 405 and a body 410, adapted to contain a vessel which contains a chemical cleaning composition (not visible). The brush head 405 exemplfies a further example of a cleaning head according to the invention, and the body 410 exemplifies a body of a combination cleaning device according to the invention. Brush head 405 comprises a proximal end 422, a distal end 424, bristles 426 and an outlet 428, and includes within a conduit (not visible) for conducting the cleaning composition which exits from the vessel when the lavatory brush 400 is used. The conduit extends through the core 430 from which the bristles 426 extend outward radially from the surface of core 430. The body 410 comprises a handle portion 440, having a proximal end 442 and a distal end 444, as well as a body portion 450, having a proximal end 452 and a distal end 454, the handle portion 440 and a body portion 450 being held together with ring 460. Ring 460 is connected to handle portion 440 at distal end 442. Body 410 is formed by connecting distal

end 442 of handle portion 440 to proximal end 452 of body portion 450 by interconnecting these parts and by use of engaging button 454. In use, the distal end 444 forms a graspable handle which may be manually gripped. To open the body 410, engaging button 454 is pushed and handle portion 440 can be removed, allowing access to the inner cavity of body portion 410. Then, an appropriate vessel, such as a pressurized can (not shown) containing a chemical cleaning composition can be removed, when empty, and replaced with an appropriate replacement can.

Desirably handle portion 440 further comprises a safety lock switch 456 and an actuating switch 458. Safety lock switch 456 and actuating switch 458 are interconnected (as shown in Figure 18) so as to provide a child safety locking system to prevent accidental discharge of the chemical cleaning composition; such may be included in any embodiment of the invention.

The proximal end 422 of the brush head 405 is attached to distal end 454 of body portion 450. While not shown in Fig. 20, it is to be understood that the emboidmnt shown includes a fluid conduit providing fluid communication through the brush head 405 with an egress at outlet 428.

Figure 21 illustrates an embodiment of an interlocking device adapted to be mounted upon a vessel according to the present invention. In the embodiment shown in Fig. 21, the interlocking device 500 comprises a plate 502 having a generally circular downwardly depending skirt 504, and one or more spring legs 506 upwardly depending from the plate 502. Here while 4 spring lets 506 are depicted only one, but preferably at least two are present. Advantageously the plate 502 and the downwardly depending skirt 504 are advantageously generally circular and concentric, with the inner diameter of the downwardly depending skirt 504 sized to encompass a circumferential ring 507 which is commonly found surrounding most conventional aerosol valves and valve stems. While not visible in Figure 21, but visible in Figure 22 in interior of the downwardly depending skirt 504 and near the lower margin 508 thereof are desirably present one or more frangible tab elements 510 which may be used to provide a "snap-fit" upon the circumferential ring 507 but when the interlocking device 500 is removed therefrom the one or more tab elements 510 break thus dissuading or disabling the use of the interlocking device 500 on a further vessel. The plate 502 necessarily includes at least a central orifice 512 which is positioned to be above the valve stem 514 (not shown in Fig. 21) which may be circular, or which may include flexible wings 516 extending towards the center of the central orifice 512 and

providing a barrier for inadvertant contact by a consumer with the valve stem 514 and thereby ensuring the the contents of the pressurized canister 518 is not inadvertandly released. The plate optionally but in most instance desrably further includes one or more keyway aperture(s) 520 each of which extends through the plate 502 and which defines a passage therethrough. As seen in Figure 21, two keyway aperture(s) 520 are depicted, each having an arcuate geometry. The operation of the interlocking device 500 will be more clearly described with reference to Figure 22.

Figure 22 illustrates in a cross-sectional view the arrangment of the interlocking device 500 according to Figure 21 mounted on an aerosol canister 518, and installed and engaged within the body 530 of a combination cleaning device according to the invention. While only a portion of the body 530 is illustrated, and similarly while only a portion of the aerosol canister 518 contaning a pressurized cleaning composition is shown, the principles of this inventive embodiment will nonetheless be sufficiently described. The embodiment of the combination cleaning device illustrated on Fig. 22 also depicts a bristled brush head 540 as the cleaning head according to the invention.

When the vessel, viz., aerosol canister 518 having mounted thereon the interlocking device 500 is inserted into the interior cavity 550 of the body 530, it is moved towards the distal interior end 552 thereof and may be rotated so that the one or more keyway aperture(s) 520 present in the plate 502 are aligned to admit corresponding keypins 532 which pass into, and prefeably through the plate 502 via the keyway aperture(s) 520. The keypins 532 extend from the sloping inner distal wall 554 of the body 530 towads the proximal end of the body 530. The length of each of the keypins 532 is desirably sufficently long to pass into, or through its corresponding keyway aperture 520 yet not physicaly interfere with the actuation of the valve 514. Similarly the cross-sectional geometries of each of the keypins 532 should correspond to the cross-sectional geometries of its corresponding keyway aperture 520. It is contemplated that unlike the embodiment illustrated in Fig. 21, that the keyway apertures 520 may have different cross-sectional geometries which are dissimilar. Notwithstanding the foregoing, it is to be understood that while the use of keyway aperture(s) 520 and corresponding keypins 532 provide specific advantages, they are not necessary to the successful practice of the invention, although their presence represents a particularly preferred embodiment thereof.

When the vessel, viz., aerosol canister 518 having mounted thereon the interlocking device 500 is inserted into the interior cavity 550 of the body 530, the spring legs 506 extend from the plate 502 and towards the sloping inner distal wall 554 of the body 530. At the same time, nipple 556 extending inwardly from the distal interior end 552 of the body 530 engages, or is in near proximity to the valve 514 of the aerosol canister 518 via the central orifice 520. When flexible wings 516 are present, such are sufficiently flexible so as to not interfere with the egress of the chemical cleaning composition from the pressurized aerosol canister 518 when the valve 512 is actuated. The flexible wings 516 may be omitted in accordance with certain preferred embodiments, in which case the only a central orifice 520 would be present.

In use, the operation of a user of the combination cleaning device urges the aerosol canister 518 to move towards the distal interior end 552 of the body 530, causing the spring legs 506 to contact the sloping inner distal wall 554 of the body 530, and to also cause the valve 512 to engage the nipple 556 which engagement causes the egress of the chemical cleaning composition from the interior of the aerosol canister 518 outwardly through the valve 512 and into the fluid conduit 558 where, due to its elevated pressure, it passes into the fluid conduit 560 of the cleaning head where it is expelled from the combination device via the orifice 562. When the user ceases to urge the aerosol canister 518 to move towards the distal interior end 552 of the body 530, the spring legs 506 relax and urge the aerosol caniser 518 to retract away from the the sloping inner distal wall 554 of the body 530, and in the direction of the proximal end of the body (not shown.)

It is to be understood that any action by the user to cause displacement of the aerosol canister 518 with respect to the the sloping inner distal wall 554 of the body 530 which is sufficient to trigger the egress of the chemcial cleaning composition is sufficient, and that such displacement may be caused directly by the user or by intermediate mechanical means, or by electrically opearated means such as motors or solenoids as described above. In certain preferred embodiments the interlock device described with reference to Fig. 21, 22 may be incorporated into the embodiments of the combination cleaning devices according to the embodiments illustrated on any of Figures 17 – 20.

It is also to be understood that while the interlock device and its operation is described with reference to Fig. 21, 22 is discussed using a pressurized canister, that it is clearly contemplated that any form of vessel, pressurized or non-pressurized, deformable or non-

deformably as described in this specification may advantageouly incorporate such an interlock device.

Figure 23 illustrates an alternative embodiment of an interlock device 600 adapted to be mounted upon a vessel, here a pressurized vessel in the form of a conventional aerosol canister 605 according to the present invention. The interlocking device includes a generally cylindrical body 610 which is suitably dimensoned so to encompass a circumferential ring 607 which is commonly found surrounding most conventional aerosol valves and valve stems. While not visible in Figure 23, but visible in Figure 24 within the interior of the cylindrical body 610 and near the lower margin 608 thereof are desirably present one or more frangible tab elements 610 which may be used to provide a "snap-fit" upon the circumferential ring 607 but when the interlocking device 600 is removed therefrom the one or more tab elements 610 break thus dissuading or disabling the use of the interlocking device 600 on a further vessel. The interlock device 600 also includes a plurality of spring legs 612 extending upwardly from the cylindrical body 610 and each terminating at an end 614. A center nipple 616 having a fluid conduit 618 passing therethrough, the center nipple 616 having a valve stem end 620 and at the opposite end thereof, a top end 622. Each of the spring legs 612 includes a diagonal stay 624 which interconects each spring leg 612 with the center nipple 616 at or in the region of the valve stem end 620 such that when the end(s) 614 of one or more of the spring legs 612 is displaced or flexed in the direction of the center nipple 616, the diagonal stay 624 urges the valve stem end 620 downwardly in the direction of the lower margin 608 of the cylindrical body 610. In use, the elements of the interlock device 600 are desirably sized or dimensioned so that there is close fit or a small distance between the valve stem end 620 and the valve stem of the aerosol canister.

The operation of the interlock device 600 is described in more detail in conjuntion with Figure 24. Figure 24 illustrates in a cross-sectional view the arrangment of the alternative interlocking device 600 according to Figure 23 mounted on an aerosol canister 605, and engaged within the body 630 of a combination cleaning device according to the invention. As is seen from Fig. 24, the interlock device 600 is engaged by a "snap-fit" upon the periphery of the circumferential ring 607 found surrounding the aerosol valves and valve stem 640. While only a portion of the body 630 is illustrated, and similarly while only a portion of the aerosol canister 605 contaning a pressurized chemical cleaning composition is shown, the principles of this inventive embodiment will nonetheless be sufficiently understood. The embodiment of the

combination cleaning device illustrated on Fig. 24 also depicts in a pad head 690 as an cleaning head according to the invention. When the vessel, viz., aerosol canister 605 having mounted thereon the interlock device 600 is inserted into the interior cavity 632 of the body 630, the spring legs 612 extend towards the sloping inner distal wall 636 of the body 630. At the same time, conduit nipple 638 extending inwardly from the distal interior end 634 of the body 630 engages, or is in near proximity to the top end 622 of the center nipple 616.

In operation, the user of the combination cleaning device urges the aerosol canister 605 to move towards the distal interior end 634 of the body 630, causing the spring legs 612 to contact the sloping inner distal wall 636 of the body 630. Such flexes the spring legs 612 inwardly in the direction of the center nipple 616 which is moved downwardly by the action of the diagonal stays 624 which causes the valve stem end 620 to contact the valve stem 640, causing the release of the pressurized chemical cleaning composition out from the interior of the pressurized vessel 605, whereby it exits from the pressurized vessel via the fluid conduit 618, and thereafter through the cleaning head 690 via conduit 692. When the user ceases to urge the aerosol canister 605 to move towards the distal interior end 634 of the body 630, the spring legs 612 relax and urge the aerosol canister 605 to retract away from the the sloping inner distal wall 636 of the body 630, and in the direction of the proximal end of the body (not shown.)

Similarly noted with regard to the embodiment illustrated on Fig. 21, 22 that with reference to the embodiment shown on Figures 23, 24 that it is to be understood that any action by the user to cause displacement of the aerosol canister 605 which is sufficient to trigger the egress of the chemical cleaning composition is sufficient, and that such displacement may be caused directly by the user or by intermediate mechanical means. In certain preferred embodiments the interlock device described with reference to Fig. 23, 24 may be incorporated into the embodiments of the combination cleaning devices according to the embodiments illustrated on any of Figures 17 – 20. It is also to be understood that while the interlock device and its operation is described with reference to Fig. 23, 24 is discussed using a pressurized canister, that it is clearly contemplated that any form of vessel, pressurized or non-pressurized, deformable or non-deformably as described in this specification may advantageouly incorporate such an interlock device.

With respect now to Figure 25, therein is depicted a cleaning head 700 having a neck portion 702 and a pad portion 704. The neck portion 702 includes a threaded recess 706 which

includes mating threads which are adapted to receive corresonding threads present on body (not shown) used to form a combination cleaning device. A fluid conduit 708, depicted in dotted lines extends from the interior of the neck portion 702 where it terminates at a face 710 in an outlet 712 present on the underside of pad portion 704. A similar cleaning head 700 is intended to be represented in Figure 24 (as 690). The cleaning head 700 also includes a cleaning pad 714 which may be permanently affixed to, or which may be removably affixed to the cleaning head 700. Conveniently the cleaning pad 714 is affixed to the face 710 by any suitable means. The pad may be of a non-abrasive or abrasive material, or alternately may be a wipe, such as a woven or non-woven wipe or may be generally any other planar sheet material which may provide an abrasive effect and/or a wiping effect. Alternately the pad may be an absorbent foam material, such as a porous sponge, especially a porous flexible sponge which may optionally include an abrasive material affixed to the sponge or incorporated into the sponge itself. The cleaning pad 714 may also be a single-use wipe or which may be used a number of times before being removed and discarded.

Turning now to Figure 26A, therein is depicted a cleaning head 750 having a neck portion 702 and depending from the distal end therof, a bar portion 720 having downwardly depending therefrom a resilient flexible strip 722. The neck portion 702 includes a threaded recess 706 which includes mating threads which are adapted to receive corresonding threads present on body (not shown) used to form a combination cleaning device. A fluid conduit 708, depicted in dotted lines extends from the interior of the neck portion 702 where it extends into the interior of the bar portion 720 wherein it divides into a plurality of fluid conduits 708A, 708B and 708C each of which includes a corresponding outlet, 724A, 724B and 724C. The cleaning head 750 is particularly useful in cleaning glass or polished surfaces as a quantity of a chemical cleaning composition may be dispensed from the combination cleaning device, wherein said composition is distributed through the bar portion 720, whose resilient flexible strip 722 can be used to thereafter squeegee the treated glass or polished surfaces.

Turning now to Figure 26B, therein is depicted a cleaning head 770 having a neck portion 702 and depending from the distal end therof, a bar portion 720 having both an outwardly depending resilient flexible strip 722, and a downwardly depending strip of an absorbent material, 726 which in preferred embodiments may be a sponge. While not shown in the figure, it is contemplated that an abrasive wipe or other flexible abrasive web may be associated with

the absorbent material 726, such as the web disclosed in US Patent 6120506, the contents of which are herein incorporated by reference. The neck portion 702 includes a threaded recess 706 which includes mating threads which are adapted to receive corresonding threads present on body (not shown) used to form a combination cleaning device. A fluid conduit 708, depicted in dotted lines extends from the interior of the neck portion 702 where it extends into the interior of the bar portion 720 wherein it divides into a plurality of fluid conduits 708A, and 708B each of which includes a corresponding outlet (not visible) from the bar portion 720. The cleaning head 770 is particularly useful in cleaning glass or polished surfaces as a quantity of a chemical cleaning composition may be firsst dispensed from the combination cleaning device, and the strip of absorbent material 726 may be used to physically clean the window it being expected that the absorbent material acts as a reservoir for the cleaning composition and as an abrasive surface which may be used to loosen stains on a glass (or other hard)surface. In the preferred embodiment as shown in Figl 26B, the flexible strip 722, which is conveniently a rubber strip or strip of other elastomeric material is positioned on a surface or face of the bar portion 720 other than the surface, or face of the bar portion 720 to which the strip of absorbent material 726 is affixed; as such , afte r the window is treated using the cleaning composition and the strip of absorbent material 726, the combination cleaning device may be turned to then present and apply the flexible strip 722 to squeegee the treated window surface.

Turning now to Figure 26C, therein is depicted a cleaning head 780 having a neck portion 702 a depending flexible elongated body section 782, and at the distal end of said cleaning head 780 a brush head 784 comprising a plurality of bristles 786. The neck portion 702 also includes a threaded recess 706 which includes mating threads which are adapted to receive corresonding threads present on body (not shown) used to form a combination cleaning device. A fluid conduit 708, depicted in dotted lines extends from the interior of the neck portion 702 where it extends through the interior of the flexible elongated body section 782 wherein it terminates at an outlet 788 at the distal end of the cleaning head 780. Such an embodiment of the cleaning head according to the invention is contemplated to provide a flexible cleaning head, wherein the flexible elongated body section 782 may be bent or otherwise deformed from a linear configuration as illustrated in Fig. 26C. Such a cleaning head 780 is particularly adapted to be used in cleaning surfaces which may be difficult to reach by a consumer.

As flexibility is convenient in many instances, it is to be understood that a depending elongated body section 782 may be integrated into the construction of any other embodiment of a cleaning head according to the invention and indeed forms certain preferred embodiments thereof.

With respect to Figure 26D, therein is depicted a cleaning head 790 having a neck portion 702 a curved body section 792, and at the distal end of said cleaning head 790 a brush head 794 comprising a plurality of bristles 796. The neck portion 702 also includes a threaded recess 706 which includes mating threads which are adapted to receive corresonding threads present on body (not shown) used to form a combination cleaning device. A fluid conduit 708, depicted in dotted lines extends from the interior of the neck portion 702 where it extends through the interior of the flexible elongated body section 792 wherein it terminates at an outlet 798 at the distal end of the cleaning head 790. Such an embodiment of the cleaning head according to the invention is contemplated to provide a cleaning head which may be used to clean surfaces which are normally obscured to the consumer, such as the underside or objects or overhanging portions of an object, such as the underside rim of a toilet bowl.

Turning now to Fig. 26E therein is depicted a cleaning head 800 having a neck portion 802 a body section 804, and at the distal end of said cleaning head 800 a mop head 810 comprising a plurality of fiber strands 812. The neck portion 802 also includes a threaded recess 806 which includes mating threads which are adapted to receive corresonding threads present on body (not shown) used to form a combination cleaning device. A fluid conduit 808, depicted in dotted lines extends from the interior of the neck portion 802 where it extends through the interior of the body section 804 wherein it terminates at an outlet at the distal end of the cleaning head 800, although said outlet is not visible in the Figure. The fiber strands 812 illustrated in the figure are looped strands but it it to be understood that any other flexible material, preferably flexible strands, flexible fibers or strips of a woven or non-woven material or textile may be affixed to the mop head 810. Such an embodiment of the cleaning head according to the invention is contemplated to provide a cleaning head which may be used to clean surface s wherein the benefit of a mop head in absorbing stains and/or physically entraining or entagling soils or particles is desired.

While the illustrated embodiments of the invention have illustrated the union of the body with a cleaning head either by a close tolerance fit such as a friction fit, or by a threaded coupling

between said body and cleaning head, it is clearly contemplated that such are provided by way of illustration and not by way of limitation. Indeed, according to certain particularly preferred embodiments of the invention the cleaning head is removably affixed to the body and may be interchanged by the user of the combination cleaning device in order to address a particular cleaning or surface treatement need. The subsitution of a variety of different cleaning heads which may be affixed to the body and each of which may be used to form a combination cleaning device is clearly to be considered within the scope of the invention, and the vending of a kit which includes one or more bodies which may be used with one or more interchangeable cleaning heads is expressly contemplated. In such a kit, it is required only that each of the different cleaning heads include a proximate end which may be removably attached to the body of the combination cleaning device either directly or by means of an intermediate linking member such as an extension and include a conduit and at least one outlet to permit for the egres of the chemical cleaning composition at the distal end of the cleaning head. As such it will be appreciated that the utility of the combination cleaning device is greatly improved due to the potential for interchangeability of the cleaning heads which may be used to form the device, as well as the utilty of the combination cleaning device with different chemical cleaning compositions which may be selectively provided to the combination cleaning device.

Figure 27 depicts an embodiment of the combination cleaning device according to the invention. Depicted in a cut-away view is a portion of a combination cleaning device according to Figure 20. Depicted is the distal end 444 of the handle portion 440, a portion of a vessel 820, here an aerosol canister is depicted, an electrical motor 822, rotatable wheel 824 is eccentrically mounted on the shaft 826 of the electrical motor, wherein electrial power is supplied from a battery 828 when two switches 830, 832 are closed to form a circuit supplied through suitable wires 834. In use, the user grasps the distal end 444 of the handle portion, and engages both switches 830, 832 which closes the electrical circuit and causes the electrical motor 822 to rotate. The rotating motor 822 in turn causes the eccentrically mounted wheel 824 to rotate, which in certain parts of its rotation causes the sheel 824 to engage a part of the vessel 820 and urge it in a direction away from the distal end 444, which action causes the cleaning composition to be impelled from the combination cleaning device. For example, the embodiment depicted on Fig. 27 may be advantageously used in conjunction with other embodiments of the invention, particularly as shown on Figures 21 – 24.

Figure 28 depicts a further embodiment of the combination cleaning device according to the invention. Depicted in a cut-away view is a portion of a combination cleaning device according to Figure 20. Depicted is the distal end 444 of the handle portion 440, a portion of a vessel 820, here an aerosol canister is depicted, a solenoid 840 wherein electrial power is supplied from a battery 828 when two switches 830, 832 are closed to form a circuit supplied through suitable wires 834. In use, the user grasps the distal end 444 of the handle portion, and engages both switches 830, 832 which actuates the plunger 842 of the solenoid towards the vessel 820 and urges it in a direction away from the distal end 444, which action causes the cleaning composition to be impelled from the combination cleaning device. For example, the embodiment depicted on Fig. 27 may be advantageously used in conjunction with other embodiments of the invention, particularly as shown on Figures 21 – 24.

Figure 29 depicts a further embodiment of the combination cleaning device according to the invention. Depicted in a cut-away view is a portion of a combination cleaning device according to Figure 20. Depicted is the distal end 444 of the handle portion 440, a portion of a vessel 850, here a collapsible bellows bottle is depicted, an electrical motor 852 wherein electrial power is supplied from a battery 828 when two switches 830, 832 are closed to form a circuit supplied through suitable wires 834. In use, the user grasps the distal end 444 of the handle portion, and engages both switches 830, 832 which engages the motor 852. The shaft of the motor 852 includes a gear 854 which engages a piston rod 856 which has a rack of mating gear teeth 858 and a piston 860 attached to one end of the piston rod 856. When the gear 854 rotates it engages the mating gear teeth 858, which moves the piston rod 856 and urges the piston 860 in a direction away from the distal end 444, which action causes the compression of the bellows bottle 850 and causes the cleaning composition to be impelled from the combination cleaning device.

While the embodiments of Figures 27 and 29 illustrate an electrical motor without a train of reduction gears or gearbox, it is contemplated that one or more further gears may be present to redue the rotation speed of the wheel 824 or the rotatinal speed of the gear 854. Alternately an appropriate electrical circuit may be used to limit the rotational velocity of the motor directly by varying its in put voltage or current or both in order to provide a reduced rotational speed from the motor.

It is further to be understood that while the embodiments of Figures 27, 28 and 29 illustrate two electrical switches 830, 832 which need be closed to permit engagement of the motor or acutation of the solenoid, a single switch or a further number of switches may be used instead without detracting from the present invention. The use of two electrical switches 830, 832 enhances the likelihood that the cleaning composition will be expelled inadvertantly.

Figure 30 depicts an embodiment of the combination cleaning device according to the invention. Depicted in a cut-away view is a portion of a combination cleaning device according to Figure 20. Depicted is the distal end 444 of the handle portion 440, a portion of a vessel 870, here a deformable bag (plenum) 872 in an open ended canister is depicted. The embodiment includes an an enagageable shaft 880 here a flexible shaft having a rack of teeth 882, and an engagement pawl 884 associated with the trigger 458 of the combination cleaning device. In operation, depressing the user grasping the distal end 444 manually depresses the trigger 485 which moves the engagement pawl 884 to engage one of the teech 882 which causes engageable shaft 880 having a piston 886 attached at one end thereof to move linearly in a direction away from the distal end 444. The piston 886 therby compresses the deformable bag 872 within the vessel 870, and causes the cleaning composition to be expelled. This motive force may be used to expel a cleaning composition from any of a variety of vessels which may be used with the present invention, particulary with non-pressurized vessels such as bellows bottles, or other collapsible or manually deformable vessels, in addition to the deformable bag 872 illustrated in the Figure.

Figure 31A and 31B illustrate alternate mounting devices for removably mounting cleaning heads upon the body of a combination cleaning device. In 31A is illustrated, in a partial cut-away view a section of a body part 900 according to the invention and a section of a cleaning head, here the core 910 of a brush head such as is illustrated, inter alia, on Fig. 19 as 11, and alternately on Fig. 20 as 405. It it to be understood that the bristles (not shown) are anchored to and extend outwardly from the core 910. As is seen, the body part 900 includes a dimensioned receiving cavity 912 at the distal end thereof which includes two lock pins 916, which receiving cavity 912 is suitably configured to receive the distal connecting end 914 of the core 910.

Figure 31B illusrates in an alternate view the core 910 and the connecting end 914, which connecting end includes two channels 918 therein, terminating in a lock lobe 920. It will be understood that according to the embodiment illustrated in Figures 31A, 31B the that core 910

may be removably affixed to the body part 900 by inserting the connecting end 914 into the receiving cavity 912 such that the lock lobes 920 engage the channels 918. The core 910 is fully inserted, and ultimately twisted to engage the lock lobes 920 upon the lock pins 916 to form a disengageable bayonet-type lock. Greater or lesser lock pins and alternate configurations of such a bayonet-type lock are also foreseen and may be used, it being only required that less than 360 degrees of rotation, prefeably less than 180 degrees of rotation and most preferably not more than 90 degrees of rotation be required to form such a bayonet lock. Such a bayonet lock may be used in any embodiment of the invention and forms a preferred embodiment of the invention.

Figure 32 illustrate alternate mounting devices for removably mounting cleaning heads upon the body of a combination cleaning device. Thereon is illustrated a part of a body 950, which also includes two exterior recesses 952 each of which in turn includes a lock detent 854 (only one of each is visible in Fig. 32). The cleaning head 960, here illustrated as a bristle brush head such as is illustrated, inter alia, on Fig. 19 as 11, and alternately on Fig. 20 as 405, includes a core 962 having two upwardly extending locking arms 964, each each of which includes a locking tab 966 (only one visible in Fig. 32). In use, the cleaning head 960 is simply inserted onto the body 950 such that the two upwardly extending locking arms 964 are inserted into the corresponding exterior recesses 952 which in turn engages the lock detent 954 with the locking tab 966. The cleaning head 960 is released by withdrawing one or both upwardly extending locking arms 964 to disengage the lock detents 954 from corresponding locking tabs 966, after which the cleaning head 960 may be removed. Such a spring-arm lock arrangement may be used in any embodiment of the invention and forms certain preferred embodiments of the invention.

The combination cleaning device may be used to treat any of a variety of hard or soft surfaces. Exemplary hard surfaces include surfaces composed of refractory materials such as: glazed and unglazed tile, brick, porcelain, ceramics as well as stone including marble, granite, and other stone surfaces; concrete surfaces, mortar surfaces, grout, finished and unfinished wood surfaces, finished and unfinished flooring surfaces, painted surfaces, glass; metals; plastics e.g. polyester, vinyl; fiberglass, Formica®, and other hard surfaces known to the industry. Hard surfaces are typically classed as non-porous surfaces. Hard surfaces which are to be particularly denoted are lavatory fixtures such as shower stalls, bathtubs and bathing appliances (racks, curtains, shower doors, shower bars) toilets, bidets, furniture surfaces paricularly painted, lacquered, polyurethane or other coated wood surfaces, flooring surfaces including lineolum, tile,

as well painted, lacquered, polyurethane or other coated flooring surfaces, and the like. Further hard surfaces include those associated with kitchen environments as well as other environments associated with food preparation, including cabinets and countertop surfaces as well as walls and floor surfaces. Further hard surfaces include glass surfaces such as windows, building trim surfaces and siding materials, e.g., aluminum, vinyl, brick and coated wood surfaces, as well as hard surfaces which may be found on vehicles such as cars, trucks, boats, and aircraft such as interior and exterior surfaces of such vehicles, as well as hubcaps, moldings, fixtures, handles, grips, mirrors, grilles, and the like. Exemplary soft surfaces include yarns, fibers, fabrics and textiles in unfinished form or in finished form, including carpets, upholstery, garments, drapery, seating surfaces, panel surfaces such as found within the interior of vehicles, and the like.

The combination cleaning device may be formed from any material which may be formed to produce the body and/or cleaning head. Advantageously all or parts of the cleaning device are produced from moldable synthetic polymer materials, such as a thermoplastic synthtiec polymer material as such materials are widely and readily available and can be conveniently formed, such as by injection molding, into one or more parts of the combination cleaning device as described herein.

According to certain inventive embodiments, preferably, 100-400 ml, preferably 100-300 ml, of chemical cleaning composition can be contained in the vessel.

The viscosity of the cleaning composition is usually not a limiting factor as it is contemplated that various chemical compositions which provide a cleaning and/or disinfecting effect may be used in the combination cleaning device, and the viscosity of such a cleaning composition may be influenced by its function. For example, wherein the cleaning composition is a glass cleaning compositions, the viscosity may be similar to that of water, or may be slighly thickened, e.g, to about 25 centipoise (cps.) Altenrately wherein the the cleaning composition is a toilet bowl cleaning and/or disinfecting composition, said toilet bowl cleaning and/or disinfecting composition may be more viscous, e.g, typically may have a viscosity of about 100 cps or in excess thereof.

It is contemplated that according to any aspect of the invention, the cleaning composition which has been described in conjunction with the combination cleaning device may also concurrently provide a sanitizing function, or disinfecting function to treated hard and/or soft surfaces. It is also contemplated that according to any aspect of the invention, the cleaning

composition may consist solely of a composition which provides sanitizing or disinfecting function, and provide little or no cleaning effect.

A combination cleaning device and method of cleaning a hard or soft surface employing the combination cleaning device have been provided showing improved user satisfaction and effectiveness. The combination cleaning device and cleaning method offer a number of different cleaning possibilities to the user, the user being free to select which most suits their cleaning requirements. Furthermore, the combination cleaning device provided is easy to use, easy to assess in use, desirably does not leak or drip when the vessel is replaced, allows for accurate direction of cleaning composition into the target surface.

Claims:

1. A combination cleaning device comprising:

a body graspable by a user of the device, and which body contains a vessel containing a cleaning composition,

means for impelling chemical cleaning composition along a conduit from the body to a cleaning head,

wherein the cleaning head includes at least one outlet for the cleaning composition.

2. The combination cleaning device according to claim 1 wherein the cleaning head is permanently affixed to the body of the combination cleaning device.

3. The combination cleaning device according to claim 1 wherein the cleaning head is removably affixed to the body of the combination cleaning device.

4. The combination cleaning device according to any preceeding claim which further includes an interlocking device mounted on said vessel or within the body of the combination cleaning devicewhich must be properly engaged in order to permit dispensation of the cleaning composition from the vessel when the combination cleaning device is used.

5. The combination cleaning device according to any preceeding claim wherein the vessel is removable from within the body and is replaceable within the body.

6. The combination cleaning device according to any preceeding claim wherein the means for impelling the cleaning composition includes an electrical motor or electrical solenoid.

7. The combination cleaning device according to any of claims 1 – 5 wherein the means for impelling the cleaning composition includes a pressurized aerosol canister which comprises a pressurizable canister, and a manually actuated valve which, when actuated, releases its contents under pressure.

8. The combination cleaning device according to any of claims 1 – 5 wherein the means for impelling the cleaning composition includes one or more mechanical elements which are used to deform a non-pressurized vessel.

9. The lavatory cleaning brush according to any preceeding claim.

10. A combination cleaning device substantially described with reference to the Figures.

Abstract:

CLEANING APPARATUS AND METHOD FOR USING THE SAME

A combination cleaning device useful in the cleaning of hard surfaces, or soft surfaces which combination cleaning device includes a cleaning means particularly an abrasive cleaning means such as a brush, abrasive pad or other physical means which is used to contact a surface requiring cleaning and/or disinfecting treatment, and which combination cleaning device further includes a chemical cleaning composition which may optionally also provide a sanitizing benefit, which combination cleaning device is manually graspable by a consumer. In preferred embodiments the chemical cleaning composition is provided in a pressurized or pressurizable vessel which is at least partially enclosed within the said combination cleaning device whererin the user of the device dispenses the cleaning composition which is expelled from the vessel and then to the cleaning means. Methods relating to the use of the device as well as methods or manufacturing the device are also disclosed.

Fig.1.

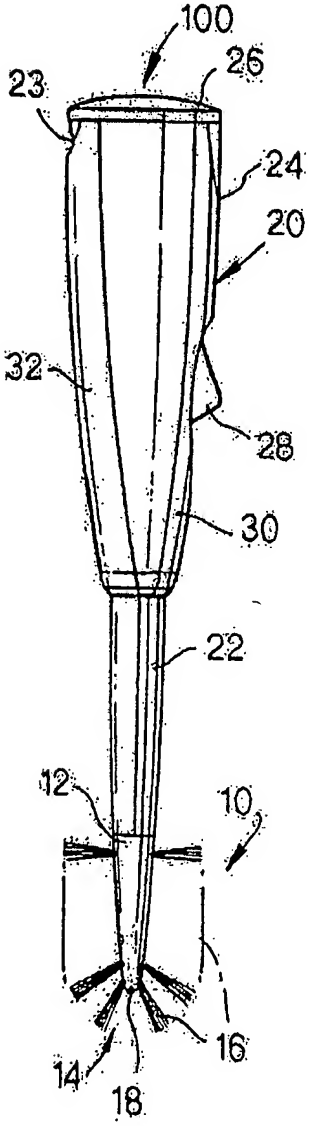


Fig.2.

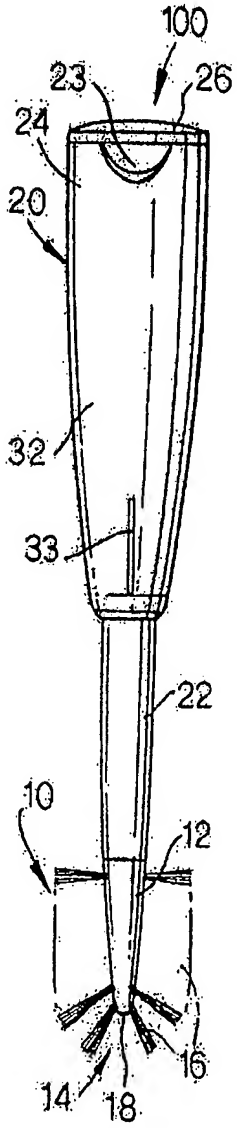
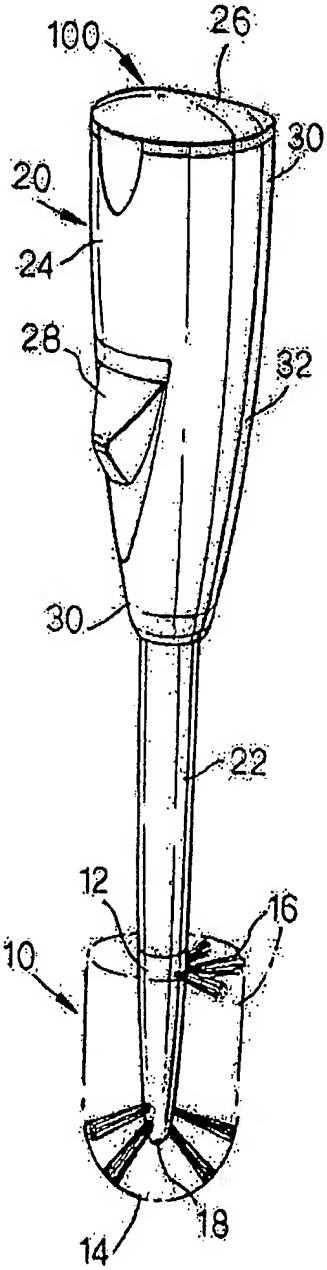


Fig.3.



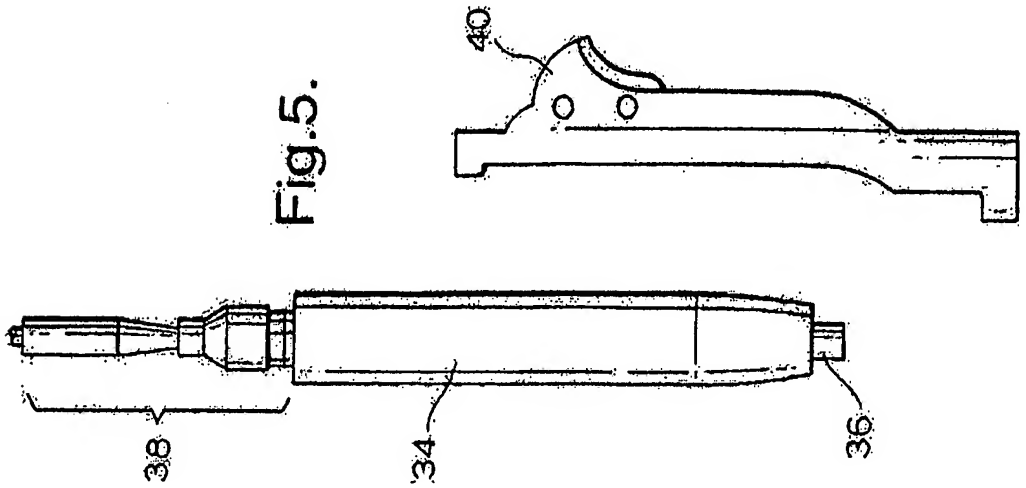


Fig.5.

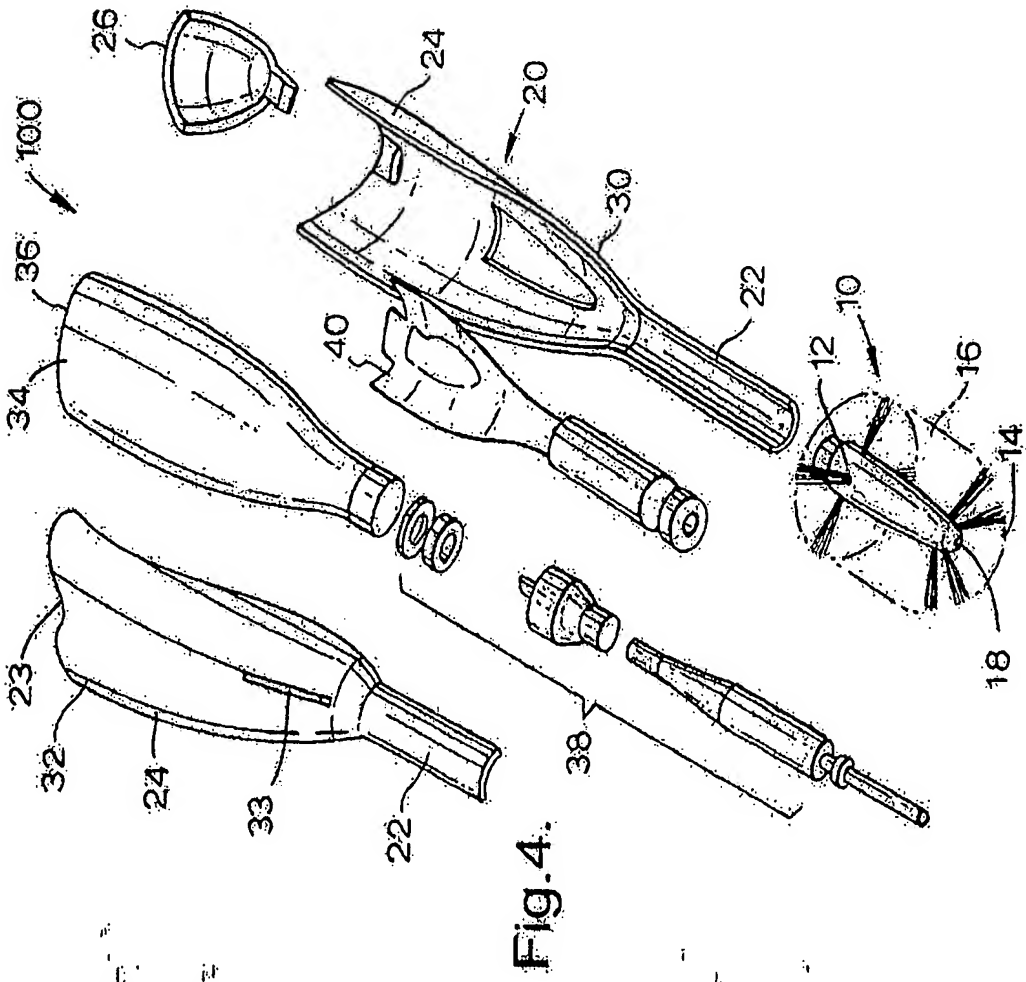


Fig.4.

Fig.6.

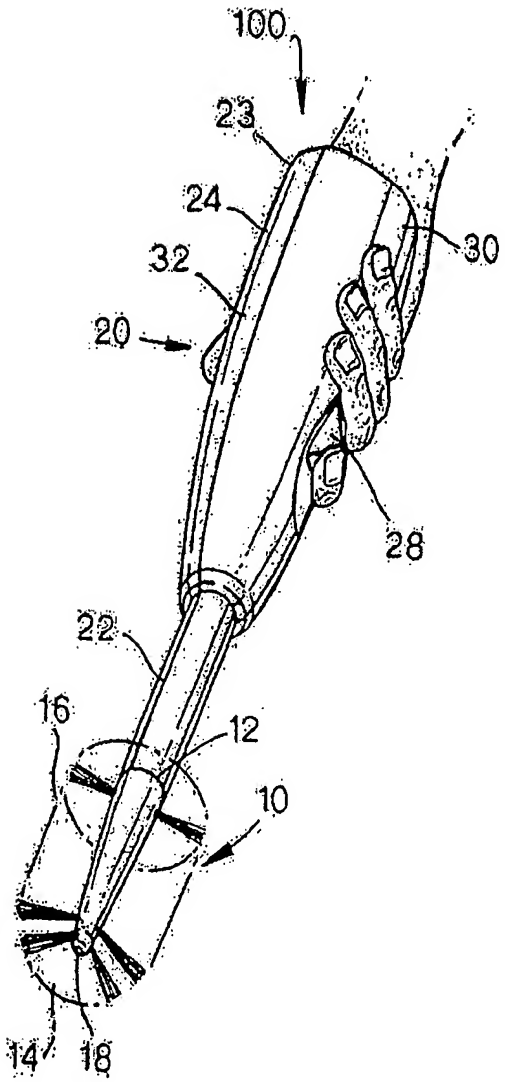

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Fig.7.

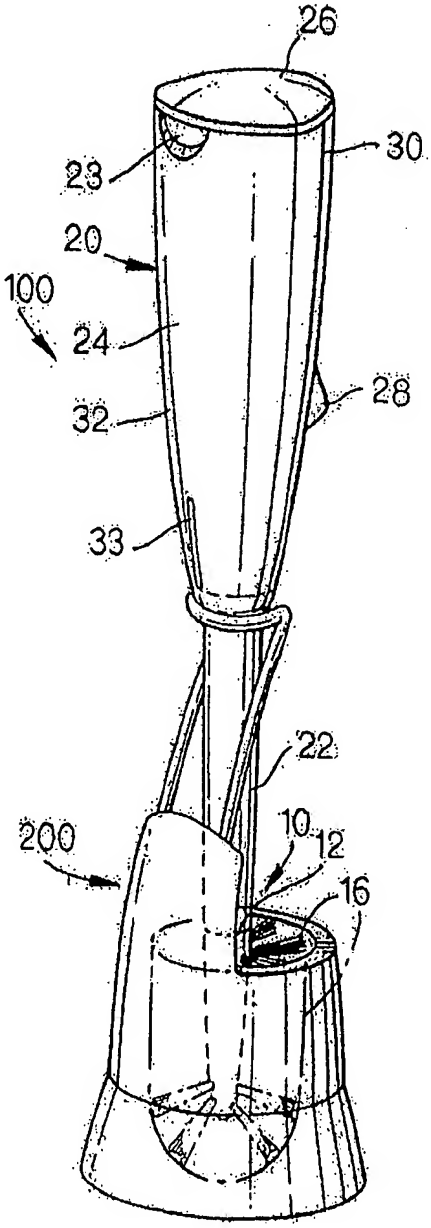
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Fig.10.

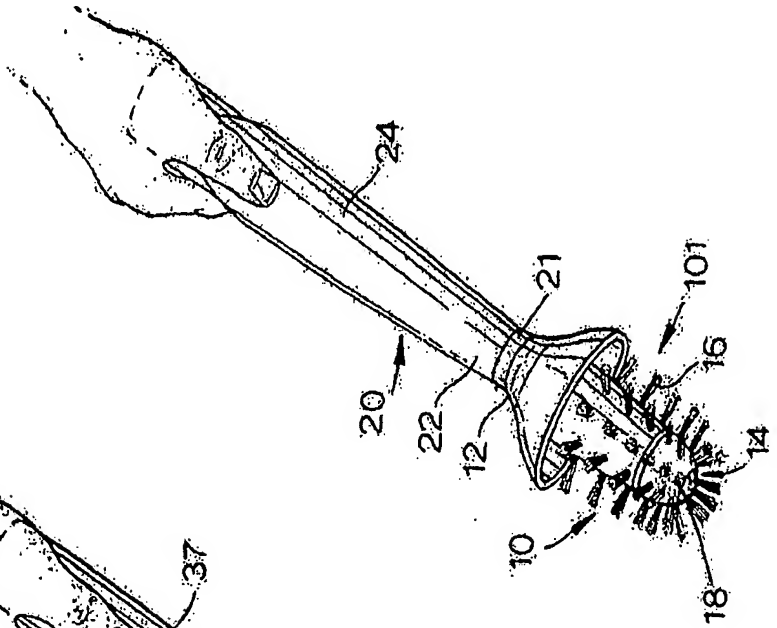

Fig.9.

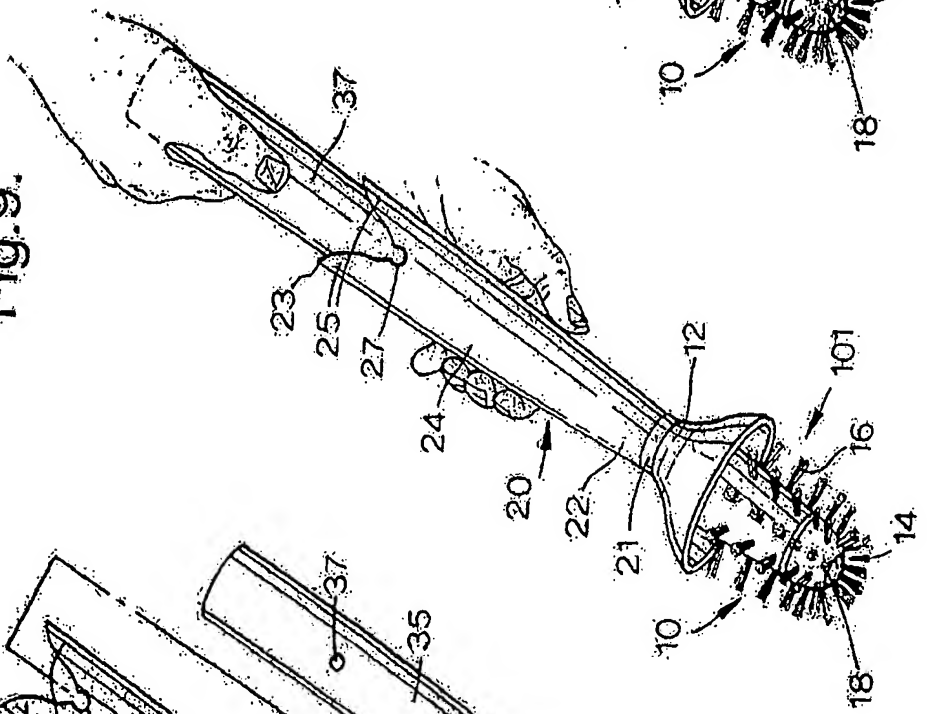

Fig.8.

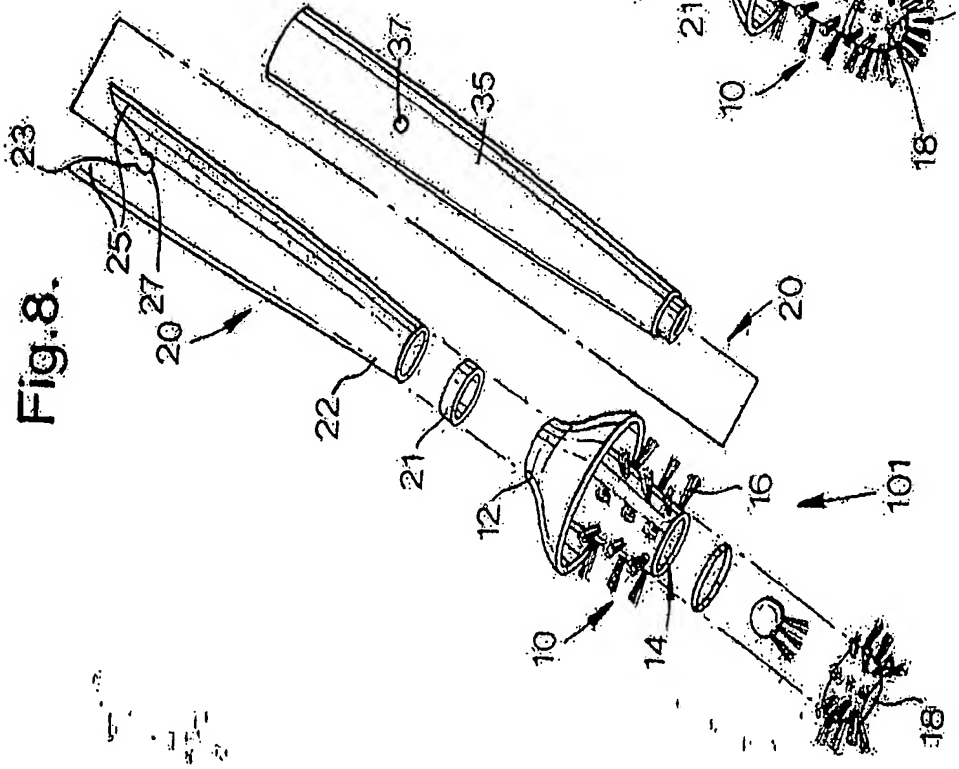

Fig.13.

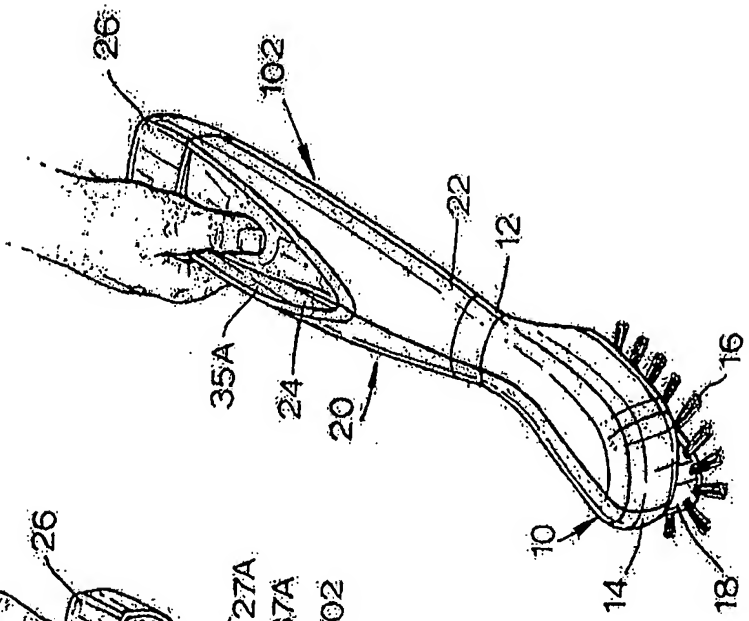

Fig.12.

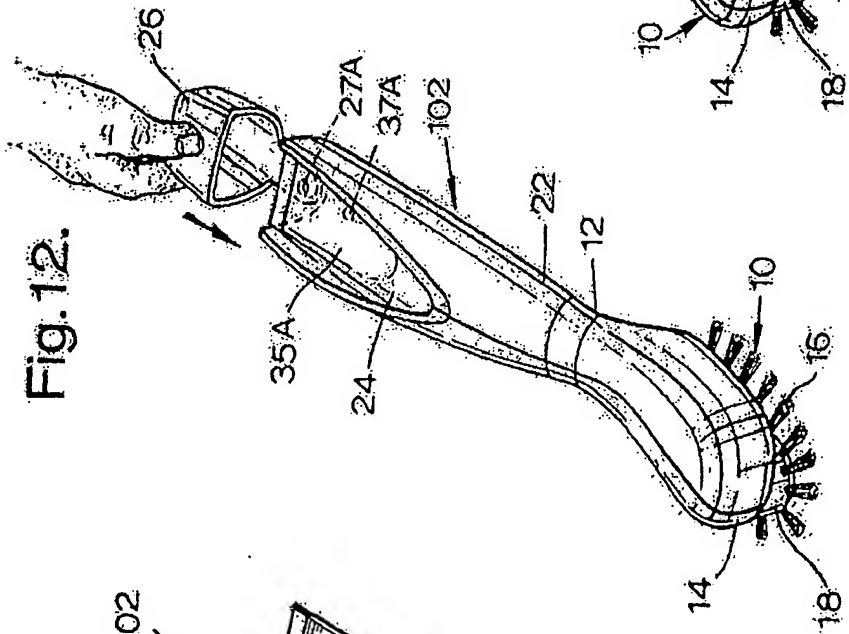

Fig.11.

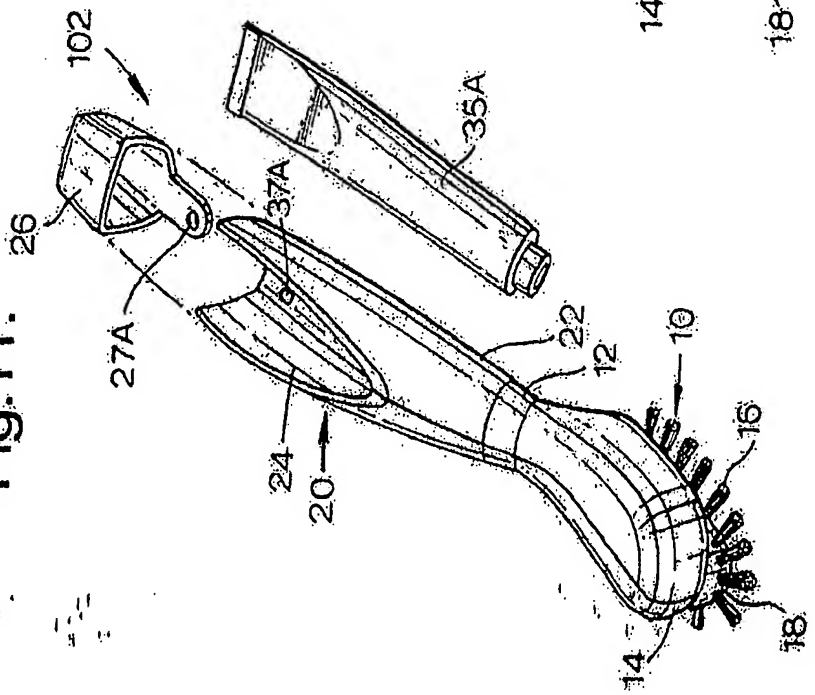

Fig.16.

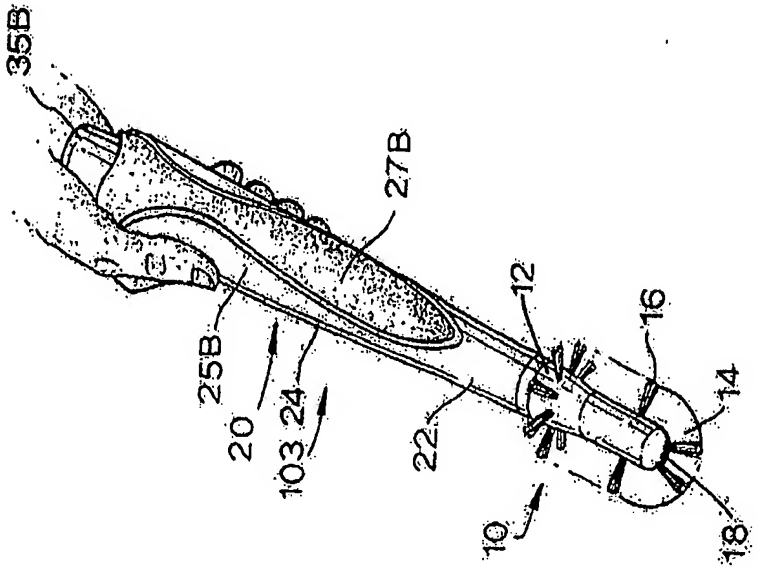

Fig.15.

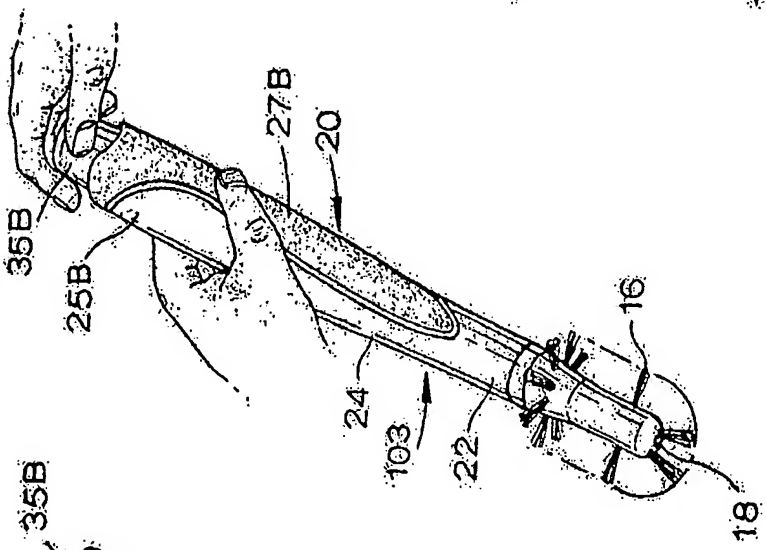

Fig.14.

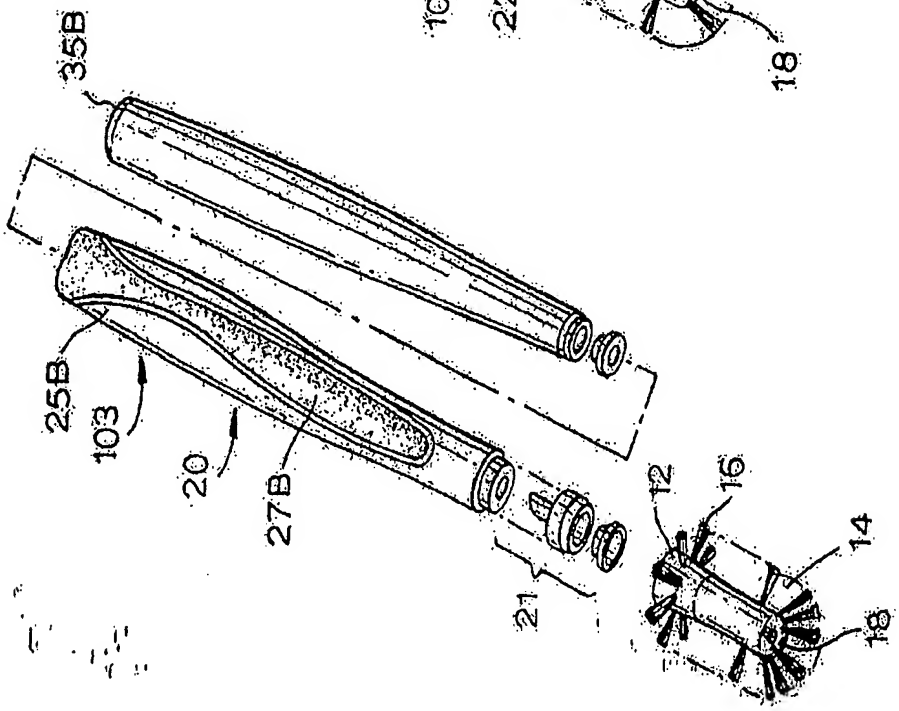

Fig.17.

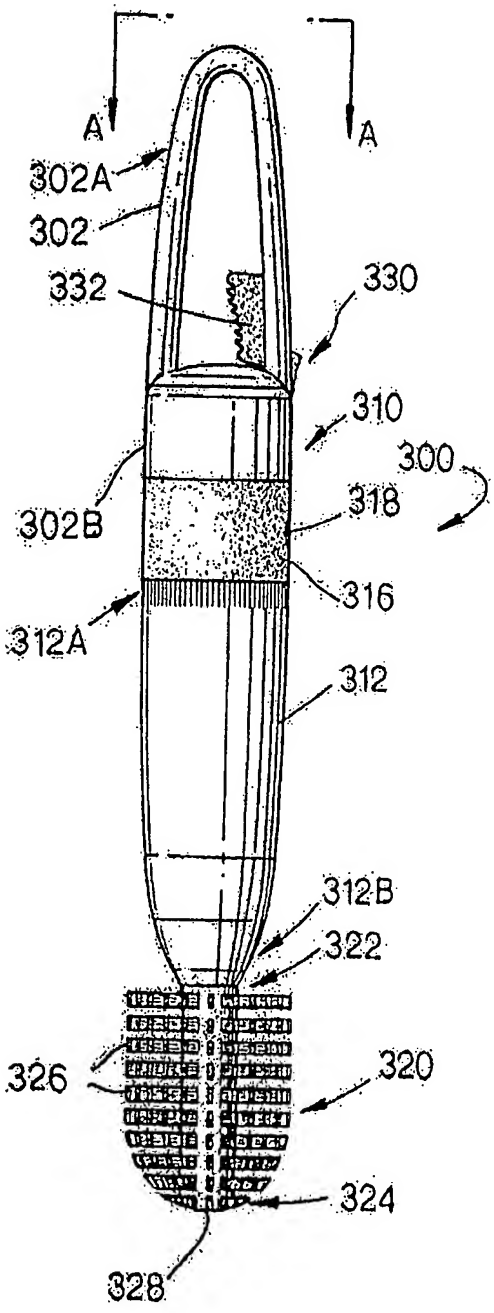
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Fig.18.

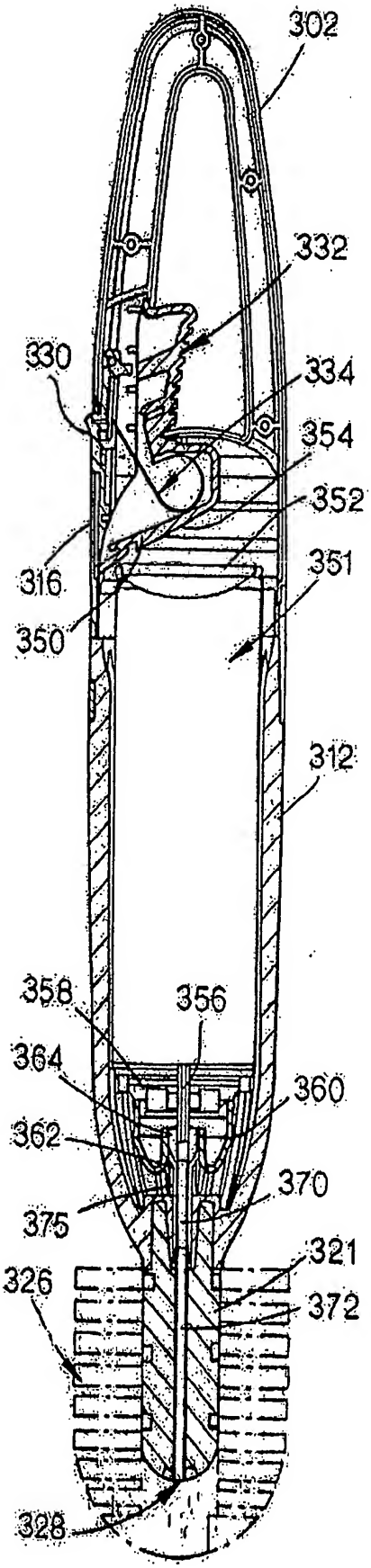
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Fig.23.

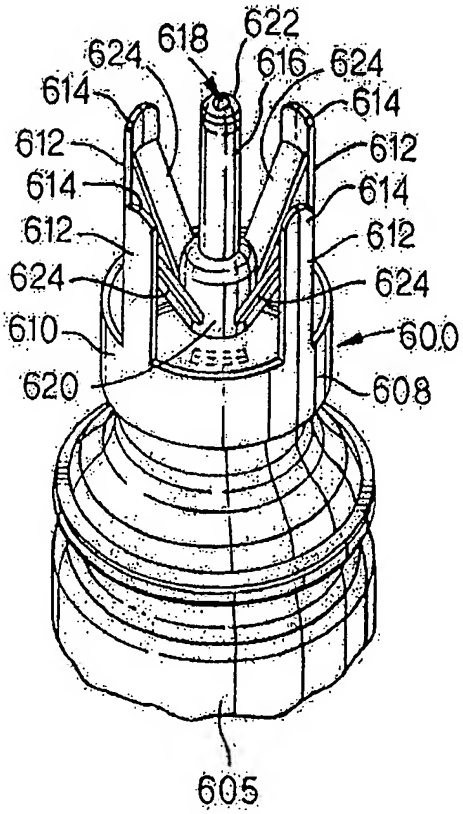
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Fig.19.

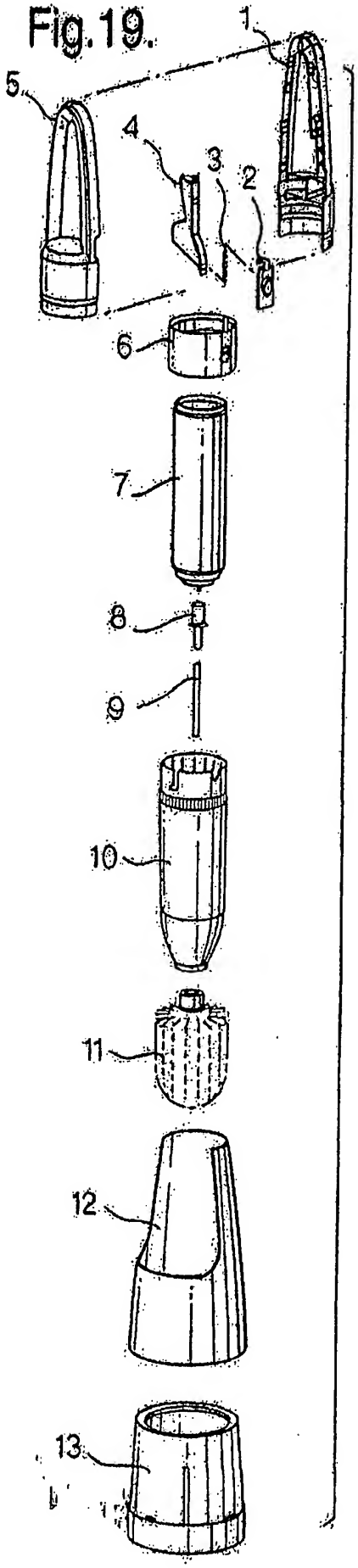
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Fig.20.

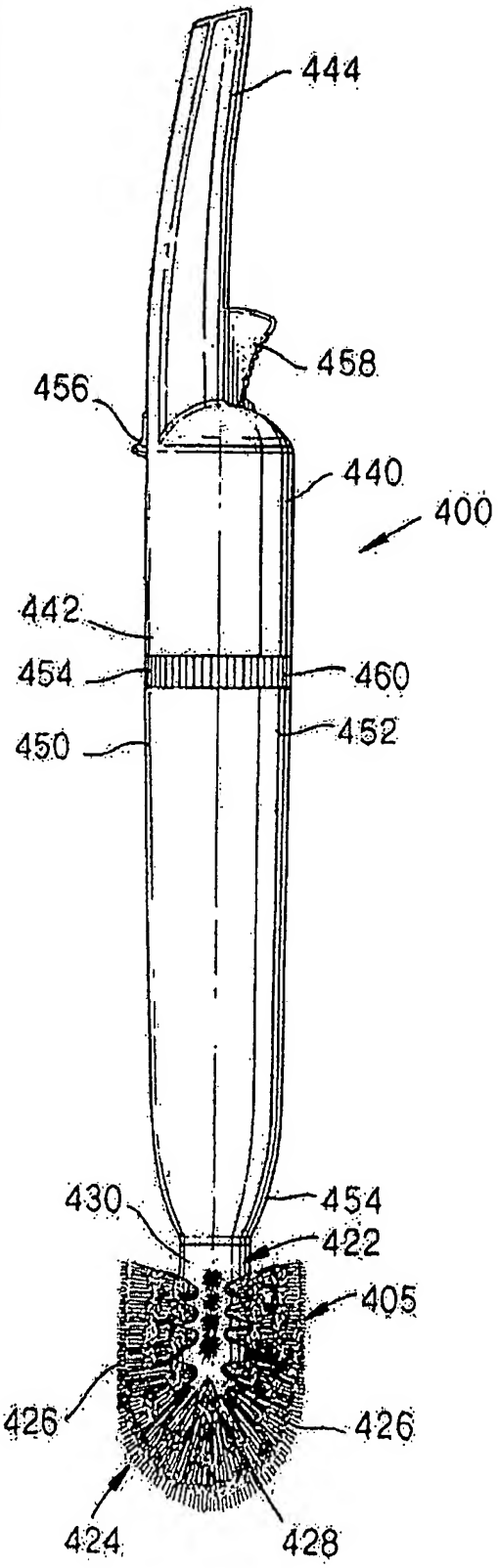
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Fig.21.

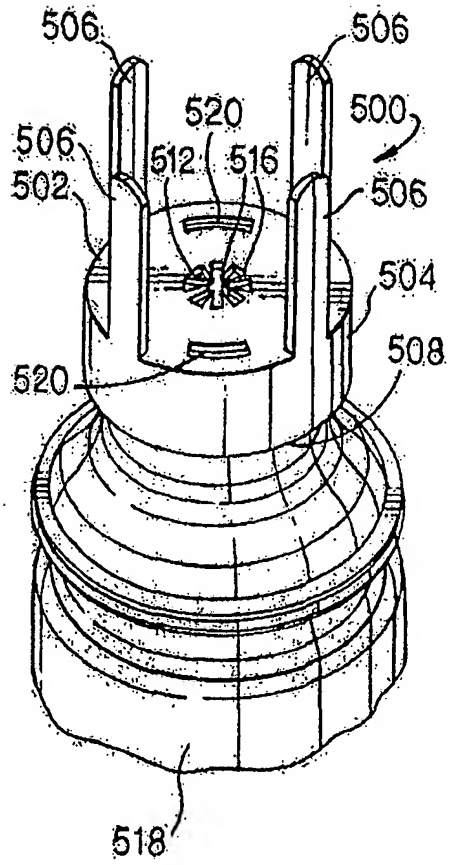
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Fig.22.

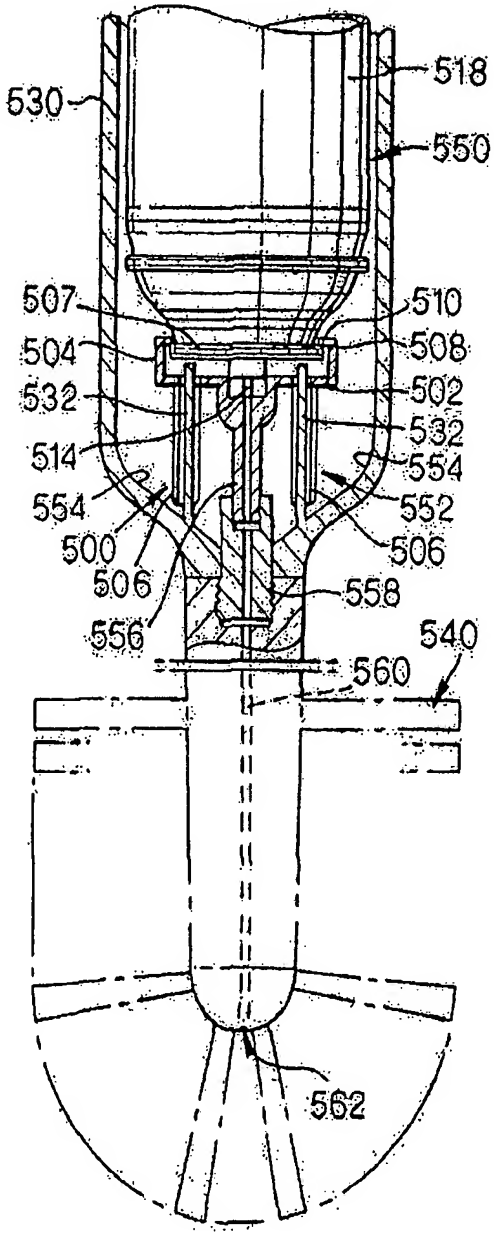
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Fig.24.

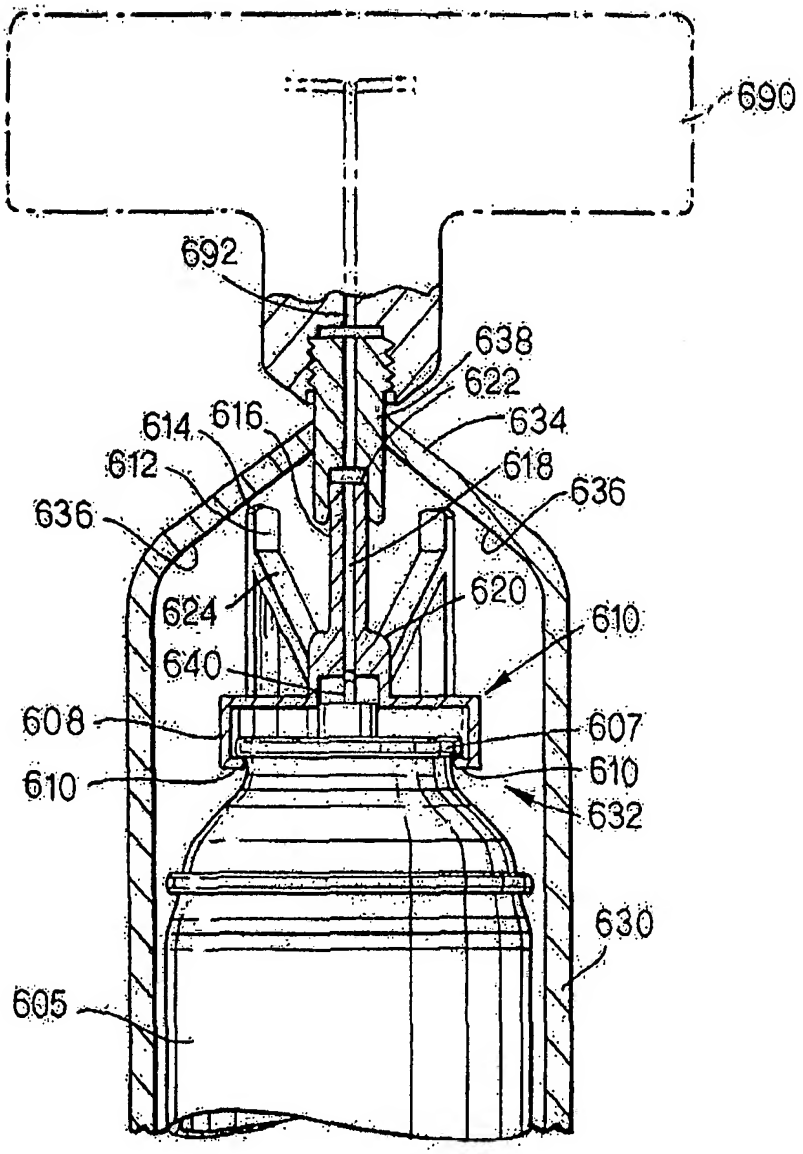
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Fig.25.

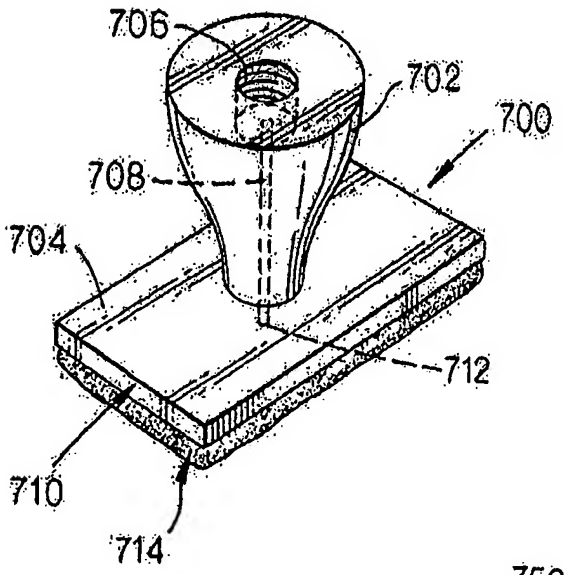

Fig.26A.

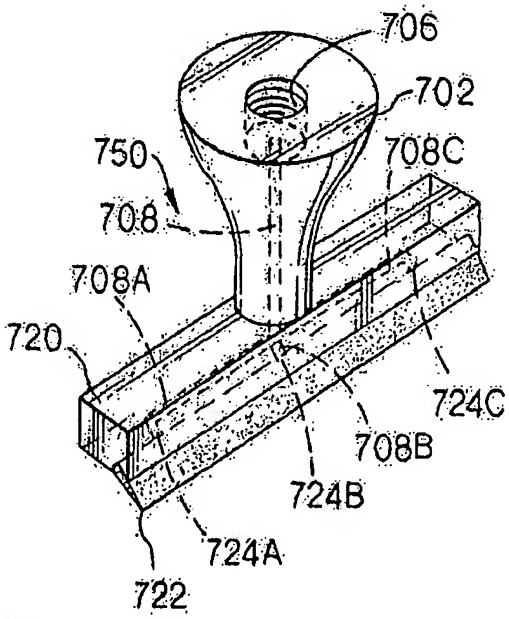

Fig.26B.

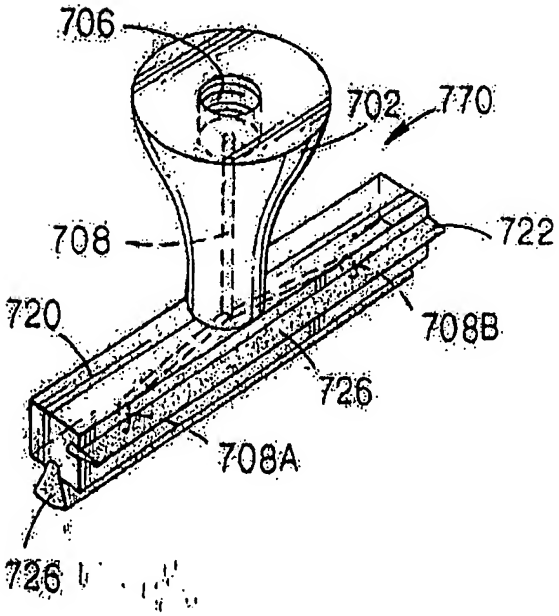

Fig.26C.

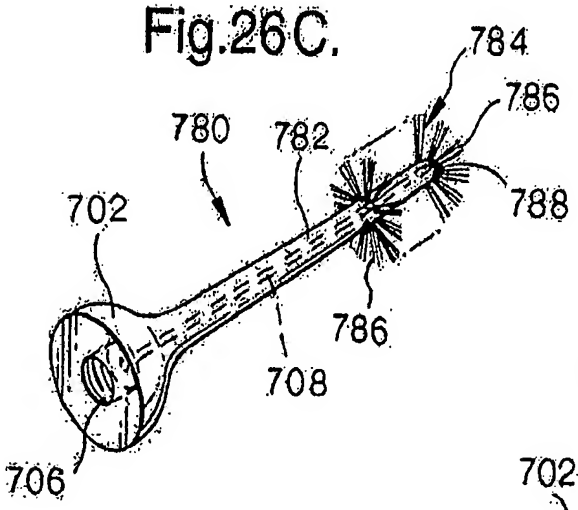

Fig.26D.

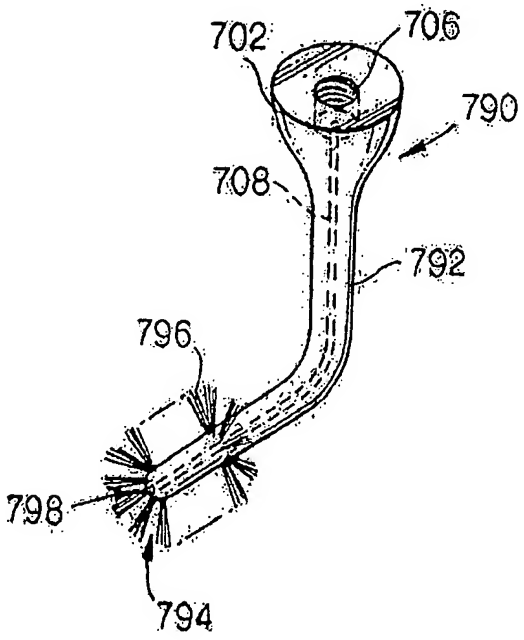

Fig.26E.

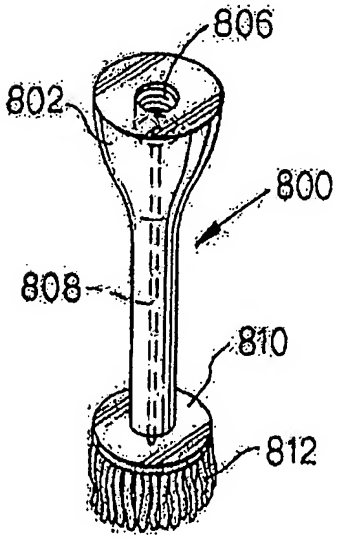

Fig.27.

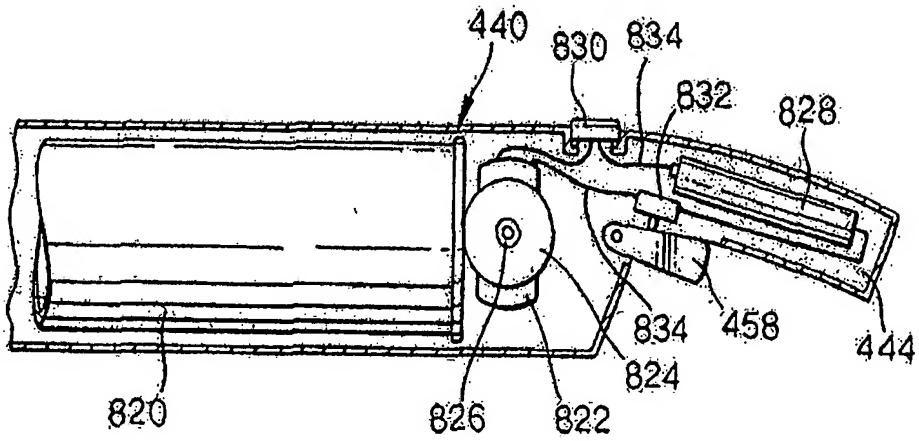
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Fig.28.

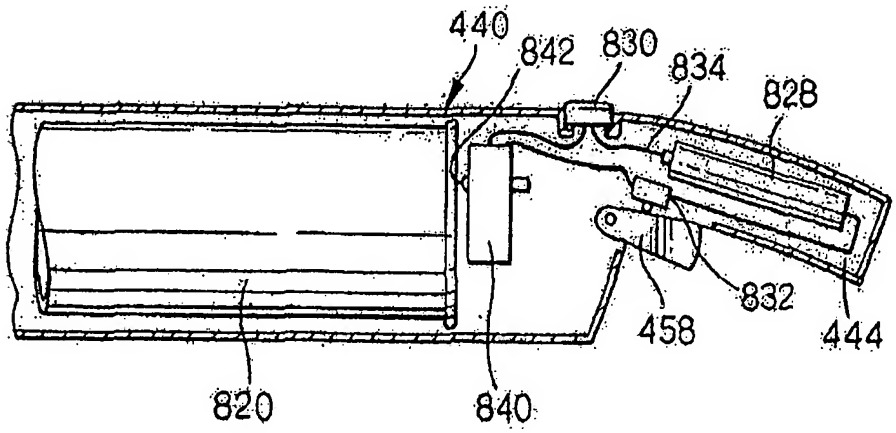
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Fig.29.

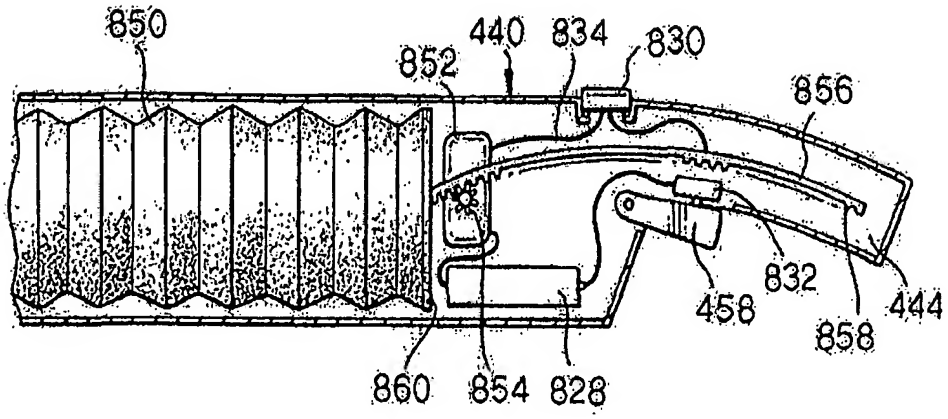
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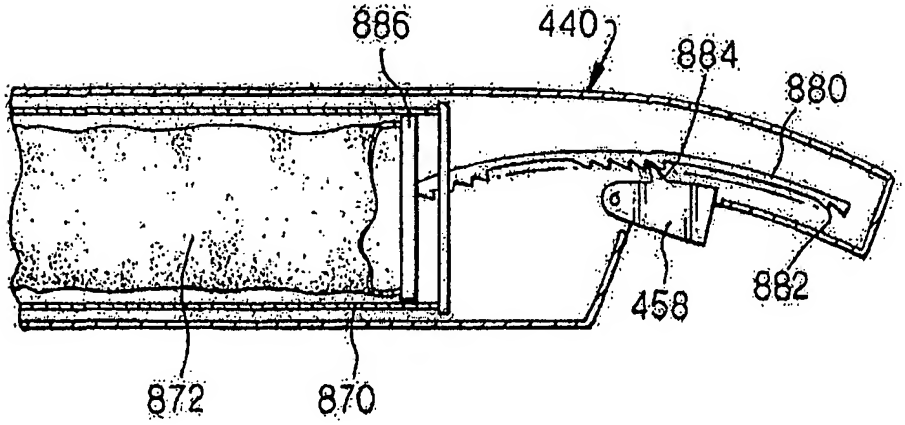
Fig.30.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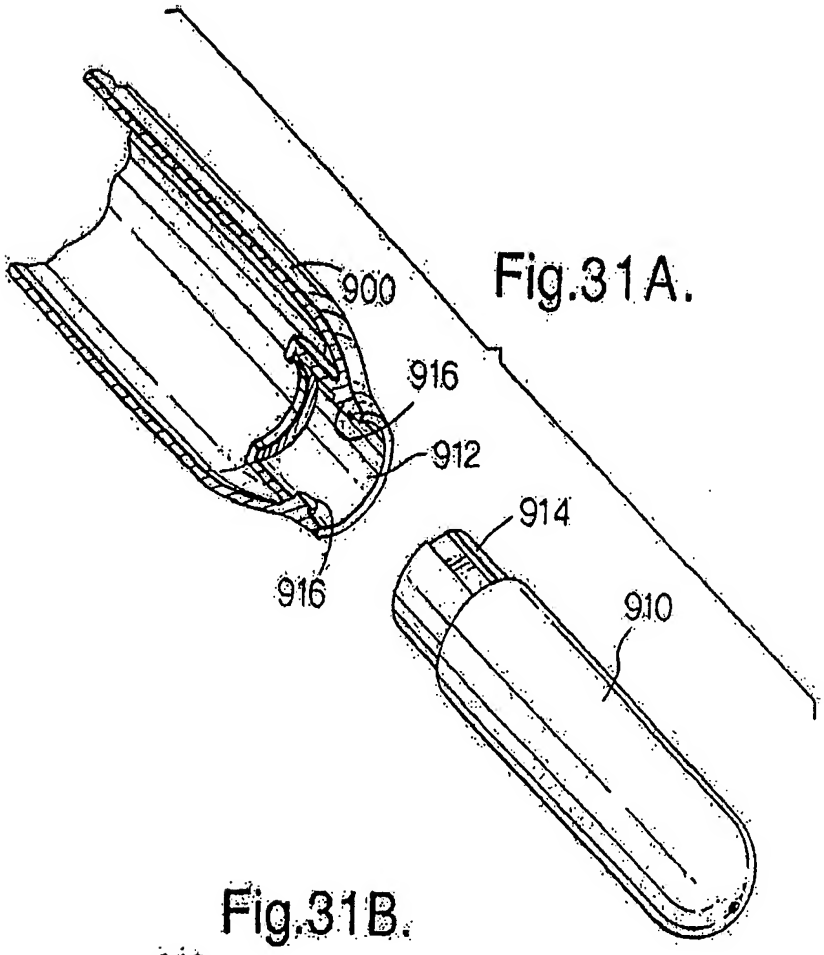


Fig.31A.

Fig.31B.

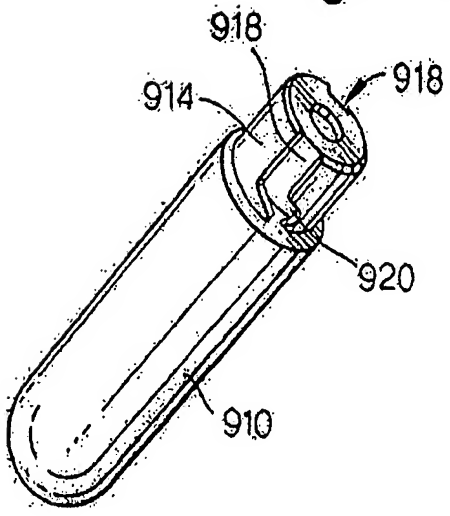
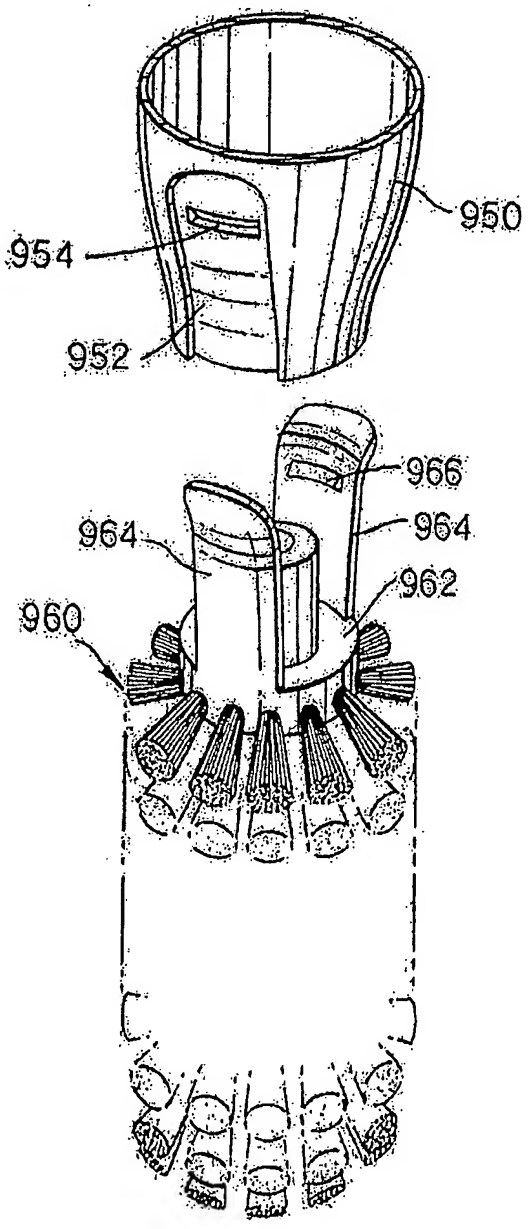


Fig.32.



COMBINED OATH, DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe that I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

IMPROVED DISPENSING DEVICE

the specification of which has been filed on December 21, 2005 in the U.S. Patent and Trademark Office as a 371 of PCT/GB2004/002267.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

I hereby claim foreign priority benefits under title 35, U.S.C. §119 of any foreign application(s) for patent or inventor certificates listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application			Priority Claimed	
0314928.3	Great Britain	26/06/2003	[X]Yes	[ ] No
(Number)	(Country)	(Day/Month/Year Filed)		
0326136.9	Great Britain	07/11/2003	[X]Yes	[ ] No
(Number)	(Country)	(Day/Month/Year Filed)		

I hereby claim to benefit under 35 U.S.C. §119 (e) of any United States Provisional application(s) listed below:

US Provisional Application Serial No.:	Filing Date:

I hereby claim the benefit under Title 35, U.S.C. §120 of any United States application(s) listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, U.S.C. §112, I acknowledge the duty to disclose maternal information is defined in Title 37, Code of Federal Regulations §1.56(a) which occurred

between the filing date of the prior application and the national or PCT international filing date of this application:

US Patent Application:	Filing Date:	Status:

I hereby declare that all statements made herein of my own knowledge or true and that all statements made on information and belief are believed to be true; and further that these statements for made with the knowledge that willful false statements and like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Power of Attorney: As a named inventor, I hereby appoint

X	Practitioners Associated with the Customer Number:	27389

as my/our attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from the Assignee of this application as to any action to be taken in the United States Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned.

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Norris, McLaughlin & Marcus PA 875 Third Avenue, 18th Floor New York, NY 10022	Andrew N. Parfomak (212) 808-0700

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Inventor's Signature	
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Inventor's Signature	
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IMPROVED DISPENSING DEVICE

The present invention is related to devices which are useful in dispensing a treatment composition (e.g, cleaning and/or sanitizing and/or coloring composition) to a sanitary appliance, e.g., a toilet bowl, while simultaneously dispensing a fragrance or perfume to the ambient environment outside of the sanitary appliance.

Since the advent of sanitary appliances, particularly toilet bowls, there is has been a continuing need in the art to provide effective ways to maintain these appliances in a satisfactory condition between uses. The art is replete with devices which are intended to be used as "in the bowl" (or ITB) or "in the cistern" (or ITC) in order to provide a coloring and/or cleaning and/or fragrancing and/or sanitizing effect to such sanitary devices, particularly toilet bowls. While many of these devices are known and widely used they are not without drawbacks. One common technical problem is to ensure the effective delivery of a treatment agent, especially a coloring agent and/or a cleaning and/or a sanitizing agent to the interior of a toilet, while at the same time providing a fragrancing effect in the proximity of the toilet. One common approach known to the art is to provide a device which is suspended from the rim of the toilet bowl and which is placed at or near the interior sidewall of the toilet bowl. Such a device is designed to typically dispense a treatment composition to the interior of a toilet typically when contacted with flushing water, or alternately, it dispenses a fragrancing composition to the toilet bowl which is intended to counteract or mask malodors. Certain known arts devices can provide these effects simultaneously. While beneficial, there is nonetheless a real and continuing need in the art to provide improved devices which can provide a fragrancing effect as well as other treatment effects, e.g., cleaning and/or sanitizing and/or coloring to a sanitary appliance, particularly a toilet.

The present invention, in its various aspects, provides a device useful for the delivery of a treatment composition, as well as a fragrancing composition to a sanitary

appliance, e.g. a toilet bowl. The device can be used either as an ITC type device, or an ITB type device for a toilet bowl.

According to one aspect of the invention there is provided a device useful in conjunction with a toilet bowl or other sanitary appliance which device provides for the delivery of a treatment composition, particularly a treatment composition selected from a coloring composition and/or a cleaning composition and/or sanitizing composition, which contains one or more active agents such as a coloring agent, cleaning agent, disinfecting agent, and/or an anti-lime scale agent or a mixture of two or more of these agents, while simultaneously providing a fragrancing effect to the ambient environment of the sanitary appliance as well, wherein the device includes

(a) a first dispenser for containing a treatment composition, particularly a treatment composition selected from a coloring composition and/or a cleaning composition and/or sanitizing composition, which first dispenser permits for passage of water contained within the sanitary appliance into and out of contact with the said treatment composition;

(b) a second dispenser for containing a fragrancing composition, which, during the use of the device, the fragrancing composition desirably does not contact water in the sanitary appliance, and

(c) a hanger connecting the first dispenser to the second dispenser, which hanger is adapted for removably hanging the device upon a portion of a sanitary appliance.

In a further aspect the present invention also comprises a process for delivering a a treatment composition, particularly a treatment composition selected from a coloring composition and/or a cleaning composition and/or sanitizing composition to the interior of a sanitary appliance, particularly a toilet bowl, which process contemplates providing a device as described herein and installing the device within or upon at least a portion of a sanitary appliance, particularly a toilet bowl whereby the said treatment composition contacts water contained within the sanitary appliance, while simultaneously providing a fragrancing effect to ambient environment of the sanitary appliance.

These and other aspects of the invention will become more apparent from the following detailed description of the invention, and drawings.

Figure 1 illustrates a perspective view of a first embodiment of a device according to the invention.

Figure 2 illustrates a side plan view of the device of Fig. 1.

Figure 3 illustrates a side plan view of the device of Fig. 1.

Figure 4 illustrates a side plan view of a second embodiment of a device according to the invention.

Figure 5 illustrates a further side plan view of the device of Fig.4.

Figure 6 illustrates a perspective view of a third embodiment of a device according to the invention.

Figure 7 illustrates a side plan view of the device according to Fig. 6.

The device according to the invention is used to simultaneously deliver a treatment composition from a first dispenser to water contained within the sanitary appliance, which treatment contains one or more active agents such as a coloring agent, cleaning agent, disinfecting agent, anti-lime scale agent, or is a mixture of two or more agents, while from the second dispenser a fragrance composition is provided to the ambient environment of the sanitary appliance.

Both the treatment composition, as well as the fragrance composition may be in provided to the device in any physical form, e.g., in a liquid, gel or solid form. Conveniently however, the treatment composition is in the form a gel form or is in a solid form, such as in the form of dissolvable block which provides for the long term release of an active agent during sequential contacts with water entering and exiting the first housing of the device.

The treatment composition may include any known art cleaning agents or cleaning constituents known to those of ordinary skill in the relevant art, and without limitation include one or more detersive surfactants selected from anionic, cationic, nonionic as well as amphoteric or zwitterionic surfactants. Certain detersive surfactants may also provide a dual role in providing detergency as well as a disinfecting effect, viz, certain cationic surfactants, which are described hereinafter as a disinfecting agent. These one or more cleaning agents or cleaning constituents may be used with or without other constituents being present in the treatment compositions of the invention.

By way of non-limiting example, useful anionic surfactants include the water-soluble salts, particularly the alkali metal, ammonium and alkylolammonium (e.g., monoethanolammonium or triethanolammonium) salts, of organic sulfuric reaction products having in their molecular structure an alkyl group containing from about 10 to about 20 carbon atoms and a sulfonic acid or sulfuric acid ester group. (Included in the term "alkyl" is the alkyl portion of aryl groups.) Examples of this group of synthetic surfactants are the alkyl sulfates, especially those obtained by sulfating the higher alcohols (C_8-C_{18} carbon atoms) such as those produced by reducing the glycerides of tallow or coconut oil; and the alkylbenzene sulfonates in which the alkyl group contains from about 9 to about 15 carbon atoms, in straight chain or branched chain. Exemplary useful are linear straight chain alkylbenzene sulfonates in which the average number of carbon atoms in the alkyl group is from about 11 to 14.

Further exemplary useful anionic surfactants herein are the water soluble salts of: paraffin sulfonates containing from about 8 to about 24 (preferably about 12 to 18) carbon atoms; alkyl glyceryl ether sulfonates, especially those ethers of C_{8-18} alcohols (e.g., those derived from tallow and coconut oil); alkyl phenol ethylene oxide ether sulfates containing from about 1 to about 4 units of ethylene oxide per molecule and from about 8 to about 12 carbon atoms in the alkyl group; and alkyl ethylene oxide ether sulfates containing about 1 to about 4 units of ethylene oxide per molecule and from about 10 to about 20 carbon atoms in the alkyl group.

Still further exemplary useful anionic surfactants herein include the water soluble salts of esters of α-sulfonated fatty acids containing from about 0 to 20 carbon atoms in the fatty acid group and from about 1 to 10 carbon atoms in the ester group; water soluble salts of 2-acyloxy-alkane-1-sulfonic acids containing from about 2 to 9 carbon atoms in the acyl group and from about 9 to about 23 carbon atoms in the alkane moiety; water-soluble salts of olefin sulfonates containing from about 12 to 24 carbon atoms; and β-alkyloxy alkane sulfonates containing from about 1 to 3 carbon atoms in the alkyl group and from about 8 to 20 carbon atoms in the alkane moiety.

A further class of anionic surfactants which may be used include carboxylates such as alkyl carboxylates which include those which may be represented by the general formula:

$$R\text{-}COO^{-}M^{+}$$

wherein R is a straight or branched hydrocarbon chain containing from about 9 to 21 carbon atoms, and M is a metal or ammonium ion; polyalkoxycarboxylates, representative of which are polyethoxycarboxylates which may be represented by the general formula:

$$R\text{-}[\text{-}OCH_2CH_2\text{-}]_n\text{-}CH_2COO^{-}M^{+}$$

wherein R is a straight chained or branched hydrocarbon chain which may include an aryl moiety, but is desirably a straight chained or branched hydrocarbon chain; and n is an integer value of from 1 – 24.

Preferred anionic surfactants are those anionic surfactants typically used in toilet cleaning compositions. Examples include sulfonates, sulfates, carboxylates, phosphates, and mixtures of the above compounds. Suitable cations in this case are alkali metals such as, for example, sodium or potassium, or alkaline earth metals such as, for example, calcium or magnesium, and ammonium, substituted ammonium compounds, including mono-, di- or triethanolammonium cations and mixtures of the cations. The following types of anionic surfactants are of particular interest: alkyl ester sulfonates, alkylsulfates, alkyl ether sulfates, alkylaryl sulfates and sulfonates, and secondary alkanesulfonates, alkenyl sulfonates. Examples of suitable anionic surfactants include alpha olefin sulfonates, dodecylbenzene sulfonates, lauryl ether sulfates, lauryl monethanol amides.

Exemplary nonionic surfactants which may find use in the present invention include known art nonionic surfactant compounds. Practically any hydrophobic compound having a carboxy, hydroxy, amido, or amino group with a free hydrogen attached to the nitrogen can be condensed with ethylene oxide or with the polyhydration product thereof, polyethylene glycol, to form a water soluble nonionic surfactant compound. Further, the length of the polyethylenoxy hydrophobic and hydrophilic elements may various. Exemplary nonionic compounds include the polyoxyethylene ethers of alkyl aromatic hydroxy compounds, e.g., alkylated polyoxyethylene phenols, polyoxyethylene ethers of long chain aliphatic alcohols, the polyoxyethylene ethers of hydrophobic propylene oxide polymers, and the higher alkyl amine oxides.

A particularly useful class of nonionic surfactants include alkoxy block copolymers which include nonionic surfactants in which the major portion of the

molecule is made up of block polymeric C_2-C_4 alkylene oxides. Such nonionic surfactants, while preferably built up from an alkylene oxide chain starting group, and can have as a starting nucleus almost any active hydrogen containing group including, without limitation, amides, phenols, thiols and secondary alcohols.

One group of such useful nonionic surfactants containing the characteristic alkylene oxide blocks are those which may be generally represented by the formula (A):

$$HO—(EO)_x(PO)_y(EO)_z—H \qquad (A)$$

where EO represents ethylene oxide,

PO represents propylene oxide,

y equals at least 15,

$(EO)_{x+z}$ equals 20 to 80% of the total weight of said compounds, and,

the total molecular weight is preferably in the range of about 2000 to 15,000.

Another group of nonionic surfactants appropriate for use in the new compositions can be represented by the formula (B):

$$R—(EO,PO)_a(EO,PO)_b—H \qquad (B)$$

wherein R is an alkyl, aryl or aralkyl group, where the R group contains 1 to 20 carbon atoms, the weight percent of EO is within the range of 0 to 45% in one of the blocks a, b, and within the range of 60 to 100% in the other of the blocks a, b, and the total number of moles of combined EO and PO is in the range of 6 to 125 moles, with 1 to 50 moles in the PO rich block and 5 to 100 moles in the EO rich block.

Further nonionic surfactants which in general are encompassed by Formula B include butoxy derivatives of propylene oxide/ethylene oxide block polymers having molecular weights within the range of about 2000-5000.

Still further useful nonionic surfactants containing polymeric butoxy (BO) groups can be represented by formula (C) as follows:

$$RO—(BO)_n(EO)_x—H \qquad (C)$$

wherein R is an alkyl group containing 1 to 20 carbon atoms,

n is about 5-15 and *x* is about 5-15.

Also useful as the nonionic block copolymer surfactants, which also include polymeric butoxy groups, are those which may be represented by the following formula (D):

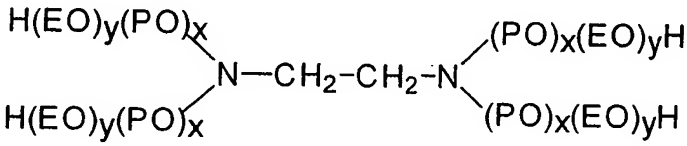
$$HO—(EO)_x(BO)_n(EO)_y\text{-}H \qquad (D)$$

wherein n is about 5-15, preferably about 15,

x is about 5-15, preferably about 15, and

y is about 5-15, preferably about 15.

Still further useful nonionic block copolymer surfactants include ethoxylated derivatives of propoxylated ethylene diamine, which may be represented by the following formula:



(E)

where (EO) represents ethoxy,

(PO) represents propoxy,

the amount of $(PO)_x$ is such as to provide a molecular weight prior to ethoxylation of about 300 to 7500, and the amount of $(EO)_y$ is such as to provide about 20% to 90% of the total weight of said compound.

Further exemplary useful nonionic surfactants which may be used in the present invention include certain alkanolamides including monoethanolamides and diethanolamides, particularly fatty monoalkanolamides and fatty dialkanolamides. Commercially available monoethanol amides and diethanol amides include those marketed under the trade names Alakamide® and Cyclomide® by Rhône-Poulenc Co., (Cranbury, NJ).

Preferred nonionic surfactants which may be used are those selected from primary and secondary alcohol ethoxylates and alkoxy block copolymers based on ethylene oxide, propylene oxide, and/or butylene oxide and mixtures thereof. For the alcohol ethoxylates, the alkyl chain of the aliphatic alcohols can be linear or branched, primary or secondary, and generally contains from about 8 to about 22 carbon atoms. The alkyl chain can be saturated or unsaturated. The alcohol ethoxylates can have a narrow ("narrow range ethoxylates") or a broad ("broad range ethoxylates") homolog distribution of the ethylene oxide. Examples of commercially available nonionic surfactants of this type are available under the tradenames Tergitol®, Genapol®, and Neodol®. Preferably, the alcohol

ethoxylates are mixed C9/11 or C11/15 alcohol ethoxylates, condensed with an average of from 6 to 15 moles, preferably from 6 to 12 moles, and most preferably from 6 to 9 moles of ethylene oxide per mole of alcohol. Preferably the ethoxylated nonionic surfactant so derived has a narrow ethoxylate distribution relative to the average.

Further particularly preferred nonionic surfactants which may be used are nonionic surfactants based on block copolymers represented by formula (A) specific examples of which include those materials presently commercially available under the tradename Pluronic® (ex. BASF). Of those of formula (A), block copolymers having an average molecular weight between 7000 to 11,000 are preferred. Examples of such components include Pluronic® 87, described as EO_{61} $PO_{41.5}$ EO_{61}, having an average molecular weight of about 7700 and Pluronic® 88, described as EO_{98} $PO_{41.5}$ EO_{98}, having an average molecular weight of about 10800.

Non-limiting examples of exemplary useful amphoteric surfactants include alkylbetaines, particularly those which may be represented by the following structural formula:

$$RN(CH_3)_2CH_2COO^-$$

wherein R is a straight or branched hydrocarbon chain which may include an aryl moiety, but is preferably a straight hydrocarbon chain containing from about 6 to 30 carbon atoms. Further exemplary useful amphoteric surfactants include amidoalkylbetaines, such as amidopropylbetaines which may be represented by the following structural formula:

$$RCONHCH_2CH_2CH_2N^+(CH_3)_2CH_2COO^-$$

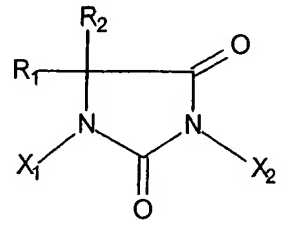
wherein R is a straight or branched hydrocarbon chain which may include an aryl moiety, but is preferably a straight hydrocarbon chain containing from about 6 to 30 carbon atoms.

The treatment compositions of the invention may include one or more sanitizing agents or sanitizing constituents which may be used with or without other constituents being present in the treatment compositions of the invention.

The sanitizing agent can be any sanitizing composition known to those of ordinary skill in the relevant art, and without limitation exemplary sanitzing compositions include materials containing alkyl halohydantoins, alkali metal haloisocyanurates,

essential oils, non-quaternary ammonium based germicidal compounds as well as quaternary ammonium germicidal compounds. These one or more sanitizing agents may be used with or without other constituents being present in the treatment compositions of the invention.

By way of non-limiting example, exemplary useful halohydantoins which may be used include those which may be represented by the general structure:



wherein:

X_1 and X_2 are independently hydrogen, chlorine or bromine; and,

R_1 and R_2 are independently alkyl groups having from 1 to 6 carbon atoms.

Examples of halohydantoins include, for example, N,N'-dichloro-dimethyl-hydantoin, N-bromo-N-chloro-dimethyl-hydantoin, N,N'-dibromo-dimethyl-hydantoin, 1,4-dichloro, 5,5-dialkyl substituted hydantoin, wherein each alkyl group independently has 1 to 6 carbon atoms, N-monohalogenated hydantoins such as chlorodimethylhydantoin (MCDMH) and N-bromo-dimethylhydantoin (MBDMH); dihalogenated hydantoins such as dichlorodimethylhydantoin (DCDMH), dibromodimethylhydantoin (DBDMH), and 1-bromo-3-chloro-5,5,-dimethylhydantoin (BCDMH); and halogenated methylethylhydantoins such as chloromethylethylhydantion (MCMEH), dichloromethylethylhydantoin (DCMEH), bromomethylethylhydantoin (MBMEH), dibromomethylethylhydantoin (DBMEH), and bromochloromethylethylhydantoin (BCMEH), and mixtures thereof. These materials are more fully discussed in United States Patent Nos. 4,560,766; 4,537,897; and 4,564,424, the contents of which are incorporated by reference.

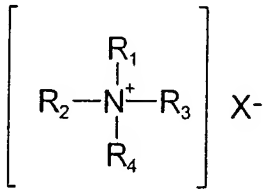
Other germicdally effective agents useful as sanitizing agents include sodium dichloroisocyanurate (DCCNa) and sodium dibromoisocyanurate. Further examples of non-quaternary ammonium based sanitizing agents include pyrithiones, dimethyldimethylol hydantoin, methylchloroisothiazolinone/methylisothiazolinone sodium sulfite, sodium bisulfite, imidazolidinyl urea, diazolidinyl urea, benzyl alcohol, 2-

bromo-2-nitropropane-1,3-diol, formalin (formaldehyde), iodopropenyl butylcarbamate, chloroacetamide, methanamine, methyldibromonitrile glutaronitrile, glutaraldehyde, 5-bromo-5-nitro-1,3-dioxane, phenethyl alcohol, o-phenylphenol/sodium o-phenylphenol, sodium hydroxymethylglycinate, polymethoxy bicyclic oxazolidine, dimethoxane, thimersal dichlorobenzyl alcohol, captan, chlorphenenesin, dichlorophene, chlorbutanol, glyceryl laurate, halogenated diphenyl ethers, phenolic compounds, mono- and poly-alkyl and aromatic halophenols, resorcinol and its derivatives, bisphenolic compounds, benzoic esters (parabens), halogenated carbanilides, 3-trifluoromethyl-4,4'-dichlorocarbanilide, and 3,3',4-trichlorocarbanilide. More preferably, the non-cationic antimicrobial agent is a mono- and poly-alkyl and aromatic halophenol selected from the group p-chlorophenol, methyl p-chlorophenol, ethyl p-chlorophenol, n-propyl p-chlorophenol, n-butyl p-chlorophenol, n-amyl p-chlorophenol, sec-amyl p-chlorophenol, n-hexyl p-chlorophenol, cyclohexyl p-chlorophenol, n-heptyl p-chlorophenol, n-octyl p-chlorophenol, o-chlorophenol, methyl o-chlorophenol, ethyl o-chlorophenol, n-propyl o-chlorophenol, n-butyl o-chlorophenol, n-amyl o-chlorophenol, tert-amyl o-chlorophenol, n-hexyl o-chlorophenol, n-heptyl o-chlorophenol, o-benzyl p-chlorophenol, o-benzyl-m-methyl p-chlorophenol, o-benzyl-m, m-dimethyl p-chlorophenol, o-phenylethyl p-chlorophenol, o-phenylethyl-m-methyl p-chlorophenol, 3-methyl p-chlorophenol, 3,5-dimethyl p-chlorophenol, 6-ethyl-3-methyl p-chlorophenol, 6-n-propyl-3-methyl p-chlorophenol, 6-iso-propyl-3-methyl p-chlorophenol, 2-ethyl-3,5-dimethyl p-chlorophenol, 6-sec-butyl-3-methyl p-chlorophenol, 2-iso-propyl-3,5-dimethyl p-chlorophenol, 6-diethylmethyl-3-methyl p-chlorophenol, 6-iso-propyl-2-ethyl-3-methyl p-chlorophenol, 2-sec-amyl-3,5-dimethyl p-chlorophenol 2-diethylmethyl-3,5-dimethyl p-chlorophenol, 6-sec-octyl-3-methyl p-chlorophenol, p-chloro-m-cresol, p-bromophenol, methyl p-bromophenol, ethyl p-bromophenol, n-propyl p-bromophenol, n-butyl p-bromophenol, n-amyl p-bromophenol, sec-amyl p-bromophenol, n-hexyl p-bromophenol, cyclohexyl p-bromophenol, o-bromophenol, tert-amyl o-bromophenol, n-hexyl o-bromophenol, n-propyl-m,m-dimethyl o-bromophenol, 2-phenyl phenol, 4-chloro-2-methyl phenol, 4-chloro-3-methyl phenol, 4-chloro-3,5-dimethyl phenol, 2,4-dichloro-3,5-dimethylphenol, 3,4,5,6-terabromo-2-methylphenol, 5-methyl-2-pentylphenol, 4-isopropyl-3-

methylphenol, para-chloro-meta-xylenol, dichloro meta xylenol, chlorothymol, and 5-chloro-2-hydroxydiphenylmethane.

Quaternary ammonium based sanitzing agents include any cationic surfactant which is known or may be found to provide a broad antibacterial or sanitizing function. Any cationic surfactant which satisfies these requirements may be used and are considered to be within the scope of the present invention, and mixtures of two or more cationic surface active agents, *viz.*, cationic surfactants may also be used. Cationic surfactants are well known, and useful cationic surfactants may be one or more of those described for example in *McCutcheon's Functional Materials, Vol.2, 1998*; *Kirk-Othmer, Encyclopedia of Chemical Technology,* 4th Ed., Vol. 23, pp. 481-541 (1997), the contents of which are herein incorporated by reference. These are also described in the respective product specifications and literature available from the suppliers of these cationic surfactants.

Exemplary cationic surfactant compositions useful in the practice of the instant invention are quaternary ammonium compounds and salts thereof, which may be characterized by the general structural formula:



where at least one of R_1, R_2, R_3 and R_4 is a alkyl, aryl or alkylaryl substituent of from 6 to 26 carbon atoms, and the entire cation portion of the molecule has a molecular weight of at least about 165. The alkyl substituents may be long-chain alkyl, long-chain alkoxyaryl, long-chain alkylaryl, halogen-substituted long-chain alkylaryl, long-chain alkylphenoxyalkyl, arylalkyl, etc. The remaining substituents on the nitrogen atoms other than the abovementioned alkyl substituents are hydrocarbons usually containing no more than 12 carbon atoms. The substituents R_1, R_2, R_3 and R_4 may be straight-chained or may be branched, but are preferably straight-chained, and may include one or more amide, ether or ester linkages. The counterion X may be any salt-forming anion which permits water solubility of the quaternary ammonium complex. Such quaternary compounds are available under the BARDAC®, BARQUAT®, HYAMINE®, LONZABAC®, BTC®,

and ONYXIDE® trademarks, which are more fully described in, for example, *McCutcheon's Functional Materials* (Vol. 2), North American Edition, 2001, and the respective product literature from the suppliers identified below. For example, BARDAC® 205M is described to be a liquid containing alkyl dimethyl benzyl ammonium chloride, octyl decyl dimethyl ammonium chloride; didecyl dimethyl ammonium chloride, and dioctyl dimethyl ammonium chloride (50% active) (also available as 80% active (BARDAC® 208M)); described generally in *McCutcheon's* as a combination of alkyl dimethyl benzyl ammonium chloride and dialkyl dimethyl ammonium chloride); BARDAC® 2050 is described to be a combination of octyl decyl dimethyl ammonium chloride/didecyl dimethyl ammonium chloride, and dioctyl dimethyl ammonium chloride (50% active) (also available as 80% active (BARDAC® 2080)); BARDAC® 2250 is described to be didecyl dimethyl ammonium chloride (50% active); BARDAC® LF (or BARDAC® LF-80), described as being based on dioctyl dimethyl ammonium chloride (BARQUAT® MB-50, MX-50, OJ-50 (each 50% liquid) and MB-80 or MX-80 (each 80% liquid) are each described as an alkyl dimethyl benzyl ammonium chloride; BARDAC® 4250 and BARQUAT® 4250Z (each 50% active) or BARQUAT® 4280 and BARQUAT® 4280Z (each 80% active) are each described as alkyl dimethyl benzyl ammonium chloride/alkyl dimethyl ethyl benzyl ammonium chloride. Also, HYAMINE® 1622, described as diisobutyl phenoxy ethoxy ethyl dimethyl benzyl ammonium chloride (available either as 100% actives or as a 50% actives solution); HYAMINE® 3500 (50% actives), described as alkyl dimethyl benzyl ammonium chloride (also available as 80% active (HYAMINE® 3500-80); and HYAMINE® 2389 described as being based on methyldodecylbenzyl ammonium chloride and/or methyldodecylxylene-bis-trimethyl ammonium chloride. (BARDAC®, BARQUAT® and HYAMINE® are presently commercially available from Lonza, Inc., Fairlawn, NJ). BTC® 50 NF (or BTC® 65 NF) is described to be alkyl dimethyl benzyl ammonium chloride (50% active); BTC® 99 is described as didecyl dimethyl ammonium chloride (50% active); BTC® 776 is described to be myristalkonium chloride (50% active); BTC® 818 is described as being octyl decyl dimethyl ammonium chloride, didecyl dimethyl ammonium chloride, and dioctyl dimethyl ammonium chloride (50% active) (available also as 80% active (BTC® 818-80%)); BTC® 824 and BTC® 835 are

each described as being of alkyl dimethyl benzyl ammonium chloride (each 50% active); BTC® 885 is described as a combination of BTC® 835 and BTC® 818 (50% active) (available also as 80% active (BTC® 888)); BTC® 1010 is described as didecyl dimethyl ammonium chloride (50% active) (also available as 80% active (BTC® 1010-80)); BTC® 2125 (or BTC® 2125 M) is described as alkyl dimethyl benzyl ammonium chloride and alkyl dimethyl ethylbenzyl ammonium chloride (each 50% active) (also available as 80% active (BTC® 2125-80 or BTC® 2125 M)); BTC® 2565 is described as alkyl dimethyl benzyl ammonium chlorides (50% active) (also available as 80% active (BTC® 2568)); BTC® 8248 (or BTC® 8358) is described as alkyl dimethyl benzyl ammonium chloride (80% active) (also available as 90% active (BTC® 8249)); ONYXIDE® 3300 is described as n-alkyl dimethyl benzyl ammonium saccharinate (95% active). (BTC® and ONYXIDE® are presently commercially available from Stepan Company, Northfield, IL).

The treatment compositions of the invention may also comprise a coloring agent which imparts a color to the water in which it comes into contact, and especially which imparts color to the water contained within the sanitary appliance. Where the sanitary appliance is a toilet, desirably the coloring agent imparts a color to the water contained within the cistern, or within the toilet bowl particularly following the flush cycle of a toilet, or in both locations. Such coloring agents have great consumer appeal, and indeed any known art coloring agent may be provided in any effective amount in order to impart a coloring effect. Colorants, especially dyes, are preferred when formulated as dry powders to enable direct incorporation into the tablet or block, however, liquid colorants may be employed in conjunction with suitable carriers. Colorants are desirably present in an amount from about 0.1 to 15 percent.

While such coloring agents may be used as the sole active water treatment agent contained within the first dispenser of the inventive device, such coloring agents typically combined with cleaning effective amounts of one or more surfactants which provide an effective cleaning benefit.

As noted previously, the treatment compositions of the invention may comprise an anti-limescale agent, which can be classified as a cleaning agent in that it provides a cleaning effect to treated lavatory device surfaces. The anti-lime scale agent agent can

virtually any known anti-lime scale agent compositions known to those of ordinary skill in the relevant art. For example, compositions containing anionic and/or nonionic surfactants together with typical anti-lime-scale agents, for example, amidosulfonic acid, bisulfate salts, organic acids, organic phosphoric salts, alkali metal polyphosphates, and the like. Examples of anti-lime scale agent compositions can be found in, for example, United States Patent No. 5,759,974; United States Patent No. 4460490; and United States Patent No. 4578207, the contents of which are herein incorporated by reference. Further examples of anti-lime scale agents include organic acids (for example, citric acid, lactic acid, adipic acid, oxalic acid and the like), organic phosphoric salts, alkali metal polyphosphates, sulfonic, and sulphamic acids and their salts, bisulfate salts, EDTA, phosphonates, HEDP and the like.

The treatment compositions may also include other known-art additives in effective amounts, such as solubility control agents, water-softening agents, , preservatives, flow aids, water-soluble fillers, corrosion inhibitors, and the like.

It will be appreciated by those of ordinary skill in the art that several of the components which are directed to provide a treatment composition can be blended into one composition with the additional appreciation that potential blending of incompatible components will be avoided. For example, those of ordinary skill in the art will appreciate that certain anionic surfactants may have to be avoided as some may be incompatible with some of the disinfecting agents and anti-lime scale agents mentioned herein. Those of ordinary skill in the art will appreciate that the compatibility of the anionic surfactant and the various disinfecting and anti-lime scale agents can be easily determined and thus incompatibility can be avoided in the situations.

When formed into solid blocks, such blocks can consist entirely of one or more of the active agents described above but such blocks may also contain effective amounts of one or more active agents with one or more inactive adjuvants known to the art to be useful in such compositions including, without limitation, fillers, colorants, dyes, and the like. Such may be included in art recognized amounts.

Preferably when the composition is in a solid block form, the solid composition according to the invention is made up into a block of from about 25 to about 75g, more preferably from about 25 to about 55g, and more preferably from about 30 to about 45g.

The solid block can be made by conventional means from the known compounds. One method of making the block is to melt the components making up the compositions of interest and then pouring the molten mass into the first chamber of the housing and allowing the mass to cool to room temperature (about 25°C). Another method is to place the components of interest into an appropriate extrusion device and extrude an appropriately sized mass that will fit into the first chamber of the housing. If the solid is to be made by extrusion, then processing aids are needed.

As noted, the device according to invention includes a second dispenser for providing a fragrancing effect to the ambient environment of the sanitary appliance, which second dispenser comprises a fragrance composition. The fragrance composition may be any composition which is known to the art to provide a perceptible fragrancing benefit, any may be based on naturally occurring materials such as one or more essential oils, or may be based on synthetically produced compounds as well. Examples of essential oils include pine oil, Anetlhole 20/21 natural, Aniseed oil china star, Aniseed oil globe brand, Balsam (Perui), Basil oil (India), Black pepper oil, Black pepper oleoresin 40/20, Bois de Rose (Brazil) FOB, Bomneol Flakes (China), Camphor oil, White, Camphor powder synthetic technical, Canaga oil (Java), Cardamom oil, Cassia oil (China), Cedarwood oil (China) BP, Cinnamon bark oil, Cinnamon leaf oil, Citronella oil, Clove bud oil, Clove leaf, Coriander (Russia), Counmarin 69°C. (China), Cyclamen Aldehyde, Diphenyl oxide, Ethyl vanilin, Eucalyptol, Eucalyptus oil, Eucalyptus citriodora, Fennel oil, Geranium oil, Ginger oil, Ginger oleoresin (India), White grapefruit oil, Guaiacwood oil, Gurjun balsam, Heliotropin, Isobornyl acetate, Isolongifolene, Juniper berry oil, L-methyl acetate, Lavender oil, Lemon oil, Lemongrass oil, Lime oil distilled, Litsea Cubeba oil, Longifolene, Menthol crystals, Methyl cedryl ketone, Methyl chavicol, Methyl salicylate, Musk ambrette, Musk ketone, Musk xylol, Nutmeg oil, Orange oil, Patchouli oil, Peppermint oil, Phenyl ethyl alcohol, Pimento berry oil, Pimento leaf oil, Rosalin, Sandalwood oil, Sandenol, Sage oil, Clary sage, Sassafras oil, Spearmint oil, Spike lavender, Tagetes, Tea tree oil, Vanilin, Vetyver oil (Java), and Wintergreen oil.

Many of these essential oils may also function as a fragrance agent, which fragrance agent which may be a substance or mixture of such substances including those

which are naturally derived (i.e., obtained by extraction of flower, herb, blossom or plant), those which are artificially derived or produced (i.e., mixture of natural oils and/or oil constituents), and those which are synthetically produced substances (odiferous substances). Generally fragrance agents are complex mixtures or blends various organic compounds including, but not limited to, certain alcohols, aldehydes, ethers, alamatic compounds and varying amounts of essential oils such as from about 0 to about 85% by weight, usually from about 10 to about 70% by weight, the essential oils themselves being volatile odiferous compounds and also functioning to aid in the dissolution of the other components of the fragrance agent. In the present invention, the precise composition of the fragrance agent desirably emanates a pleasing fragrance, but the nature of the fragrance agent is not critical to the success of the invention. Indeed, is fully contemplated as being within the scope of the invention to include any other material which is useful in providing treatment of ambient air, such as a sanitizing agents such as one or more glycols or alcohols, or materials which are intended to counteract, neutralize, or mask odors in place of, or in conjunction with the fragrance composition of the present invention. Alternatively, it is also contemplated that all or part of the fragrance composition of the present invention is may be substituted by one or more materials which provide and effective insecticide repelling or insecticidal benefit; such would be particularly useful in climates or environments where insects present a nuisance or health hazard.

According to particularly preferred embodiments of the invention, the fragrance composition is associated solely with the second dispenser of the invention. In this preferred as, according to preferred mode of utilizing the inventive device, the device is positioned with respect to a sanitary appliance, particularly a toilet bowl, such that the second dispenser does not come into contact with water during the useful life of the device. This provides several simultaneous benefits including, the longevity of the fragrance composition, the improved delivery characteristic of the fragrance composition which does not become submerged or diluted with water associated with the sanitary appliance, as well as the fact that a much broader range of fragrance compositions (or other air treatment compositions as noted above) can be utilized as, there is no concern regarding the compatibility of fragrance with the materials in the treatment composition

of the first dispenser. Furthermore, the utilization of the fragrance composition solely in conjunction with the second dispenser also provides a constant release of the fragrance composition to the ambient environment of the sanitary appliance even when the sanitary appliance is not being the used. In the case where pleasant fragrance and/or odor masking composition is provided in the fragrance composition, a beneficial consumer perception of the use of the products can be realized. Alternately, where a sanitizing agent and/or an insecticidal agent is utilized as all or part of the fragrance composition of the second dispenser, the continual benefits of continuous release of such agency may be provided.

Nonetheless, it is to be understood that the treatment composition of the first dispenser can also contain a fragrance composition, or other air treatment composition as described above. Such however exemplifies a less preferred inventive embodiment for the reasons noted herein.

The form of the fragrance composition can take any form including, liquid, solid, or gel form. Preferably however, the fragrance composition is a gel system which is then deposited in the fragrance chamber of the device. The gel system can be formed by a variety of components known to those of ordinary skill in the art. For example, it can be formed from absorbents, starch based systems, modified celluloses, natural gums and other materials which can form a gel when the fragrance composition, aforementioned gel components, and water or hydrophilic solvents are mixed together. According to certain particularly advantageous embodiments of the invention the fragrance composition is a gel system as it is described in United States Patent No. 5,780,527, the contents of which are hereby incorporated by reference.

Examples of treatment compositions which can be used with the present invention are shown in the following table below.

Component	Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5
Dodecyl Benzene Sulfonate Na[1]	25	10	40	35	35
Alfa Olefine Sulfonate Na[2]	25	10	5	32	32
Lauryl monoethanolamide[3]	10	8	5	2	5
Sodium Lauryl Ether Sulfate[4]	10	-	-	4.5	5
Pluronic 68[5]	10	-	-	3	-
Na Sulfate	20	-	-	21.5	21
Pluronic 87 or 88[6]	-	70	50	-	-
Alcohol ethoxylate C_9-C_{11} 6EO[7]	-	2	-	-	-
Silica	-	-	-	2	2

[1] Dodecyl Benzene Sulfonate Sodium (80-90% active) -- anionic
[2] Alpha Olefin Sulfonate Sodium -- anionic
[3] Lauryl Monoethanolamide -- non-ionic
[4] Sodium Lauryl Ether Sulfate (70% active) -- anionic
[5] Polyoxyethylene (160) polyoxypropylene (30) glycol - non-ionic
[6] Pluronic 87 E_{61} $P_{41.5}$ E_{61} -- Molecular Weight 7700 -- HLB 24 -- non-ionic
Pluronic 88 E_{98} $P_{41.5}$ E_{98} -- Molecular Weight 10800 -- HLB 28-- non-ionic
[7] Alcohol ethoxylate C_9-C_{11} 6EO -- non-ionic

The above exemplary compositions can be made either by melting the various components together and placing the melt into a housing which is used as the first dispenser of the inventive device, or by placing the components into a suitable extruder and extruding out a block having a desired shape and size, and thereafter providing it to the first dispenser of the inventive device.

Exemplary sanitizing compositions for use in the present invention include compositions having the general compositions described as follows:

A hydantoin tablet containing 94 wt. % Dantochlor powder (about 86% 1,3-dichloro-5,5-dimethylhydantoin) and 6.0 wt. % of an inert binder, comprising a 5 wt. % solution of laponite can be made by extrusion (with a die diameter and shape suited to the proposed first chamber) at a temperature of from about 80 to 90°F and a pressure at the end of the extruder barrel ranging from about 50 to about 350 psi. An appropriately sized block can then be cut from the extrudate and allowed to cool to room temperature. Another example can use a 2 wt. % solution of laponite. According to other examples the 5 wt. % solution of laponite can be replaced with sodium stearate and water (respectively representing 5 wt. % and 4 wt. % of composition prior to drying; respectively

representing 10 wt. % and 6 wt. % of the final composition prior to drying; and respectively representing 6 wt. % and 7.5 wt. % of the composition, prior to drying). Alternately there can be used a binder that contains a 2 wt. % laponite solution and sodium stearate (the laponite solution representing 3 wt. % of the composition and the sodium stearate representing 7.5 wt. % of the composition, prior to drying; a 5 wt. % laponite solution and sodium stearate (respectively representing 3 wt. % and 7.5 wt. % of the composition, prior to drying).

An example of a bleach containing composition suitable for use as a treatment composition in the devices of the present invention include compositions having the general ranges as follows:

Component	Range Percentage w/w
Alpha olefin sulfonate	0- 35
Sodium lauryl ether sulfate	3.0-6.0
Bleaching agent (e.g., DCCNa or Hydantoin)	0.5 - 25
Lauryl monoethanolamide	2.0-5.0
Dodecyl benzene sulfonate Na	50-70
Na sulfate anhydrous	15-25
Silica	1.0-2.0

A non-limiting examples of a anti-lime scale agent containing composition useful as a treatment composition in the devices of the present invention include compositions described as follows:

Description	Qty
Spary dried silica	9.46
Na sulfate	10.81
Na dodecylbenzenesulfonate (80%)	74.05
Na_4 HEDP	1.62
Alcohol C_{13}/C_{15}	1.08
Dye	2.97

In the devices according to the present invention, it is to be understood that the form on the first dispenser as well as the form of the second dispenser is not critical to the successful operation of the invention. It is only required that be appropriately dimensioned or appropriately sized in order that they may contain, or have otherwise

associated therewith, their corresponding treatment compositions, or alternately their fragrancing compositions. According to certain preferred embodiments of the invention, both the first dispenser and the second dispenser include a housing having at least one cavity contained therein, which cavity is appropriately sized or dimensions to receive and to retain their corresponding treatment compositions or fragrancing compositions. Such housings may include covers which may facilitate in retaining the compositions contained therein. Desire bleak, the housings also include at least one or more perforations, or for that matter may include wholly exposed surfaces which permit for the contact of water with the treatment compositions, or alternately which permit for the contact of ambient air with the fragrance compositions when the inventive devices are in a use.

A further element of the device according to the invention is a hanger connecting the first dispenser to the second dispenser, which hanger is adapted for removably hanging the device upon a portion of a sanitary appliance. The form of the hanger may take any shape form or configuration which is found satisfactory. Ideally, the hanger is generally in the form of a rigid, semi-rigid or flexible strip having a one end thereof the first dispenser attached thereto, and at the other and thereof, the second dispenser attached thereto. In use, according to preferred methods for utilizing the dispenser, the hanger is used to suspend the first dispenser containing the treatment composition within the flow path of water within the sanitary device, while simultaneously suspending the second dispenser containing the fragrance composition such that it does not normally, into contact with water, nor with the flow path of water within the sanitary device. According to one particularly preferred method of use, the device is utilized in conjunction with a toilet having a tank or cistern which is used to store water in between flushes. In this method, the hanger is suspended upon the upper rim of the tank such that, the first dispenser is immersed in water contained within the tank present between flushes, while simultaneously, the second dispenser is suspended on the exterior of the tank thereby permitting the emanation of the fragrance composition to the ambient environment of the toilet bowl. In this manner, the inventive device operates as an ITC type device. In another particularly preferred method of use, the device is utilized in conjunction with a toilet bowl such that, the hanger is suspended upon the rim of the

toilet bowl, such that the first dispenser is suspended into the interior of the toilet bowl, while the second dispenser is suspended on the exterior of the toilet bowl such that, during the release of flush water into the toilet bowl, at least part of the first dispenser and the treatment composition is contacted with the flush water. In this manner, the inventive device operates as an ITB type device. Other methods of use, although not specifically recited here are also contemplated as being within the scope of the present invention

The various elements of the device according to the invention can be formed out of any of a variety of materials with synthetic polymers being preferred. Exemplary suitable synthetic polymers include polyethylene, polypropylene, and the like; the only criteria being that the selected synthetic polymers is not affected by the components of the treatment composition, or fragrance composition particularly when in a gel form or solid form .

The device according to the invention may also have a different geometry and appearance than the embodiments described in the Figures. For example the hanger may be a rigid material which is stiff, or which may be a flexible material, such as in the form of a flexible band or strap. Further, each of the first and second dispensers may have a configuration other than specific embodiments depicted in the Figures. Further the forms of the individual dispensers depicted may be interchanged with like dispensers depicted on different figures.

In the accompanying figures, like elements are indicated using the same numerals throughout the figures.

Turning now to the figures, Fig. 1 illustrates a perspective view of an embodiment of the device 10 according to a first embodiment of the invention. The device 10 includes a hanger 12 having a first end 14, and at the opposite end thereof, a second end 16. In the configuration shown in Fig. 1, the hanger 12 has a generally "U" shaped configuration, including a central bridge section 18 having downwardly dependent therefrom the two legs 20, 22 terminating at respective ends 14, 16 as described above and as depicted in Fig. 1. In the embodiment, each of the legs 20, 22 are of essentially the same length, although of course such is not a necessity in the practice of the present invention.

Affixed to the end 16 is a first dispenser 24 in the form of a housing adapted to contain a treatment composition (not shown). In the embodiment illustrated in Fig. 1, the first housing 24 has a generally cylindrical geometry having a sidewall 26 which includes a plurality of perforations 28 providing access to the interior of the first housing, as well as a perforated top cover 30 and a perforated bottom cover 32 at opposite ends of the sidewall 26. Although not shown in Fig. 1, a treatment composition, especially in the form of a block is intended to be inserted into the interior of the first housing 24. The presence of the various perforations permit for the entry and egress of water in the sanitary appliance to enter and exits the first housing 24 and thereby come into contact with the treatment composition.

Affixed to the end 14 is a second dispenser 34 in the form of a housing adapted to contain a fragrance composition. While not visible in Fig. 1, the second dispenser 34 contains a cavity 36 which is adapted to contain a quantity of the fragrance composition, particularly when in the form of a gel or any solid, but especially particularly a gel. In the embodiments shown in Fig. 1, the cavity faces away from the direction of the first dispenser 24. Such an arrangement thereby permits for an unobscured face of the fragrance composition to be presented to the ambient environment.

While not specifically illustrated in the figures, the device of Figure 1 is particularly adapted to be used with a toilet bowl having a cistern such that, the bridge 18 is suspended from the hopper margin on the cistern, such that the device is suspended whereby he first dispenser 24 containing the treatment composition is contained within the interior of the cistern and comes into contact with the water contained within the cistern, and wherein the second dispenser 36 is positioned on the exterior of the cistern, and wherein the fragrance composition contained therein comes into contact with the ambient environment of the toilet bowl.

Figure 2 illustrates a side plan view of the device of Fig. 1, providing a more detailed view of the respective positioning of the various elements of the device described with reference to Fig. 1

Figure 3 illustrates a side plan view of the device of Fig. 1, in this view from the top of the hanger 12 illustrating the "side-by-side" spatial relationship of the housing of the first dispenser 24 and housing of the second dispenser 34.

Figure 4 illustrates a side plan view of a second embodiment of a device 10 according to the invention. The device 10 includes a hanger 12 having a first end 14, and at the opposite end thereof, a second end 16. In the configuration shown in Fig. 1, the hanger 12 has a generally "U" shaped configuration, including a central bridge section 18 having downwardly dependent therefrom the two legs 20, 22 terminating at respective ends 14, 16 as described above and as depicted in Fig. 1. In the embodiment, each of the legs 20, 22 are of essentially the same length, although of course such is not to be understood to be a limitation.

Affixed to the end 16 is a first dispenser 25 in the form of an open-ended housing adapted to contain a treatment composition (not shown), and having an open end 27 permitting access to the interior of the first dispenser 25. In the embodiment illustrated in Fig. 4 the first housing 25 has having a generally bisected cylindrical geometry having a sidewall 26 which includes a plurality of perforations 28 providing access to the interior of the first housing 25. Although not shown in Fig. 4, a treatment composition, especially in the form of a block or a gel is well suited to be inserted into the interior of the first housing 25. The presence of the various perforations permit for the entry and egress of water in the sanitary appliance to enter and exits the first housing 25 and thereby come into contact with the treatment composition.

Affixed to the end 14 is a second dispenser 34 in the form of a housing adapted to contain a fragrance composition. The second dispenser 34 contains a cavity 36 which is adapted to contain a quantity of the fragrance composition, particularly when in the form of a gel or any other solid form, but especially particularly a gel. In the embodiment shown in Fig. 4, the cavity 36 faces away from the direction of the first dispenser 24. Such an arrangement thereby permits for an unobscured face of the fragrance composition to be presented to the ambient environment.

While not specifically illustrated in the figures, the device of Figure 4 is particularly adapted to be used with a toilet bowl having a cistern such that, the bridge 18 is suspended from the hopper margin on the cistern, such that the device is suspended whereby the first dispenser 25 containing the treatment composition is contained within the interior of the cistern and comes into contact with the water contained within the cistern, and wherein the second dispenser 36 is positioned on the exterior of the cistern,

and wherein the fragrance composition contained therein comes into contact with the ambient environment of the toilet bowl.

Figure 5 illustrates a further side plan view of the device of Fig.4, including with more particularity the first dispenser open end 27 permitting access to the interior of the first dispenser 25.

A preferred embodiment of an inventive device is illustrated on Figures 6 and 7.

Turning now to Figure 6 therein is illustrated a perspective view of a third and a preferred embodiment of a device according to the invention. The device 10 includes a hanger 12 having a first end 14, and at the opposite end thereof, a second end 16. In the configuration shown in Fig. 1, the hanger 12 has a generally "U" shaped configuration, including a central bridge section 18 having downwardly dependent therefrom the two legs 20, 22 terminating at respective ends 14, 16 as described above and as depicted in Fig. 1. dissimilar length which effectively ensures that the first housing 24 adapted to contain a treatment composition (not shown) is not in a "side-by-side" configuration with the second dispenser 34 in the form of a housing adapted to contain a fragrance composition. In the embodiment illustrated in Fig. 6, the first housing 24 has a generally frustoconical geometry having a sidewall 26 which includes a plurality of perforations 28 providing access to the interior of the first housing, as well as a perforated top cover 30 and a perforated bottom cover 32 at opposite ends of the sidewall 26. Although not shown in Fig. 1, a treatment composition, especially in the form of a block is intended to be inserted into the interior of the first housing 24. As discussed previously the presence of the various perforations permit for the entry and egress of water in the sanitary appliance to enter and exits the first housing 24 and thereby come into contact with the treatment composition contained within.

Affixed to the end 14 is a second dispenser 34 in the form of a housing adapted to contain a fragrance composition. While not visible in Fig. 5, the second dispenser 34 contains a cavity 36 which is adapted to contain a quantity of the fragrance composition, particularly when in the form of a gel or any solid, but especially particularly a gel. In the embodiments shown in Fig. 1, the cavity faces away from the direction of the first dispenser 24. Such an arrangement thereby permits for an unobscured face of the fragrance composition to be presented to the ambient environment.

The preferred embodiment of the inventive device is particularly adapted to be used with a toilet bowl having a cistern in the same manner as that described with reference to the first embodiment depicted on Figure 1.

According to the present embodiment the length (the distance from the bridge 18 to the respective ends 14, 16 of each of the two legs 20, 22) are dissimilar. Preferably the length of leg 20 is not more than 70% of the length of leg 22, more preferably not more than 50%, still more preferably not more than 30%, yet more preferably not more than 25%, and most preferably is not more than 20% of the length of leg 22. Such a configuration of the length of each of the two legs 20, 22 provides a particularly attractive and a particularly form of the device which provides good performance. Wherein such an embodiment is suspended upon the tank wall forming the cistern of a toilet bowl, the first housing 24 containing the treatment composition is suspended downwardly in the interior of the cistern. In such a position, it is likely to be immersed within the flush water contained within the cistern irregardless of the variation in water levels in the cistern which may occur from time to time during normal operation, as well as during the flush cycle. On the other hand, the second dispenser, being suspended from a shorter let 20 is particularly adapted to be positioned on the tank wall of the cistern on the front, i.e., the side visible to the user of the toilet. In such a position the second dispenser is very visible to the user of the toilet who can quickly visually check to determine if the fragrance composition, particularly when in the form of a gel or any solid is exhausted as is often evidenced by shrinking of the gel. Additionally such a positioning of the device ensures that good exposure of the fragrance composition is provided in a position proximate to the toilet bowl.

Figure 7 illustrates a side plan view of the device 10 according to Fig. 6, more clearly depicting certain details of the second dispenser 34 including the cavity 36 which further includes a plurality of retention elements "a" present within the interior of the cavity 36 and are solid elements around which the solid or gel fragrance composition is anchored. In the embodiment shown in Figure 7 the retention elements "a" are in the form of spikes which extend upwardly from the floor 37 of the cavity. Other forms of the solid elements are also clearly contemplated. Also visible in Figure 7 is a passage 38 through the second dispenser 34, as evidenced by the depiction of part of the leg 22

within the passage 38. The presence of such a passage 38 is in some embodiments preferred as such minimizes the visual impact of the second dispenser 34 by permitting the user to view at least a part of the tank wall of the cistern within the second dispenser.

While the invention is susceptible of various modifications and alternative forms, it is to be understood that specific embodiments thereof have been shown by way of example in the drawings which are not intended to limit the invention to the particular forms disclosed; on the contrary the intention is to cover all modifications, equivalents and alternatives falling within the scope and spirit of the invention as expressed in the appended claims.

Claims:

1. A device useful in conjunction with a toilet bowl or other sanitary appliance which device provides for the delivery of a treatment composition, which contains one or more active agents such as a coloring agent, cleaning agent, disinfecting agent, and/or an anti-lime scale agent or a mixture of two or more of these agents, while simultaneously providing a fragrancing effect to the ambient environment of the sanitary appliance as well, wherein the device includes

(a) a first dispenser for containing a treatment composition, which first dispenser permits for passage of water contained within the sanitary appliance into and out of contact with the said treatment composition;

(b) a second dispenser for containing a fragrancing composition, which, during the use of the device, the fragrancing composition desirably does not contact water in the sanitary appliance, and

(c) a hanger connecting the first dispenser to the second dispenser, which hanger is adapted for removably hanging the device upon a portion of a sanitary appliance.

2. A device according to claim 1 wherein the first dispenser comprises a sidewall having at least one perforation passing through said sidewall.

3. A device according to claim 1 wherein the second dispenser comprises a cavity containing a fragrance composition.

4. A device according to any of claims 1 - 3 wherein the hanger is flexible.

5. A device according to any of claims 1 – 4 wherein the hanger includes a bridge section having two downwardly depending legs.

6. A device according to any of claims 1 – 5 wherein the hanger includes a bridge section having two downwardly depending legs having different lengths.

7. A device according to any of claims 1-6 wherein the treatment composition is in the form of a solid block.

8. A device according to any of claims 1-7 wherein the treatment composition is in the form of a gel.

9. A device substantially as described with reference to the Figures.

10. A process for delivering a treatment composition to the interior of a sanitary appliance, particularly a toilet bowl, which process contemplates providing a device as described with reference to claim 1, and installing the device within or upon at least a portion of a sanitary appliance, whereby the said treatment composition contacts water contained within the sanitary appliance, while simultaneously providing a fragrancing effect to ambient environment of the sanitary appliance.

Abstract:

IMPROVED DISPENSING DEVICE

A device useful for the delivery of a treatment composition, and a fragrancing effect to a sanitary appliance, especially a toilet bowl.

Fig.1.

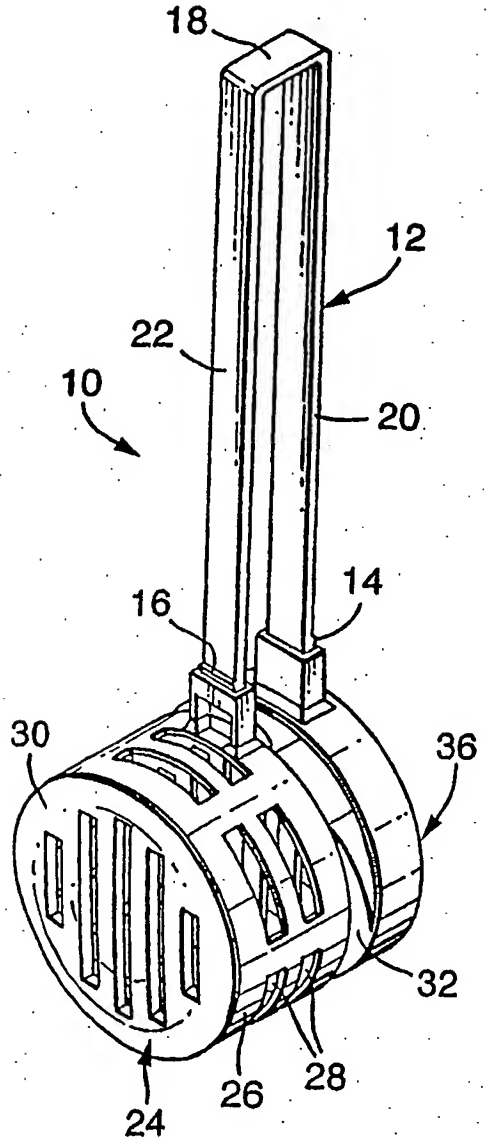


Fig.2.

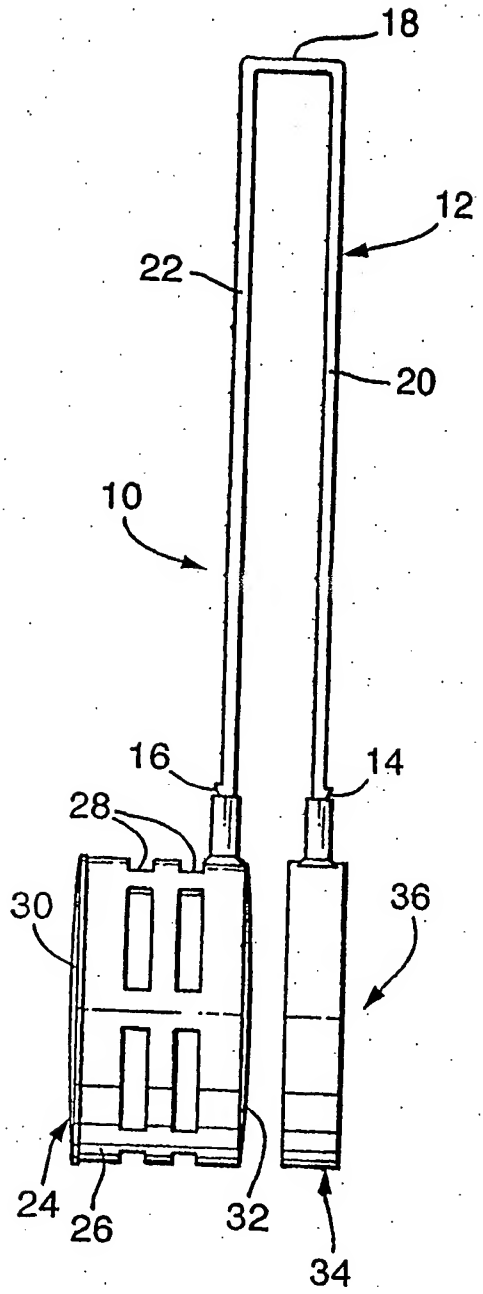


Fig.3.

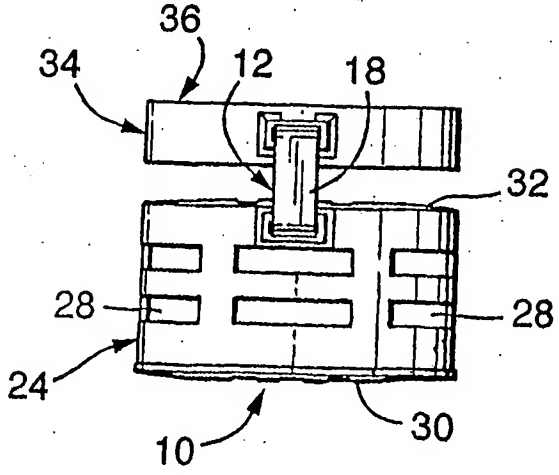


Fig.4.

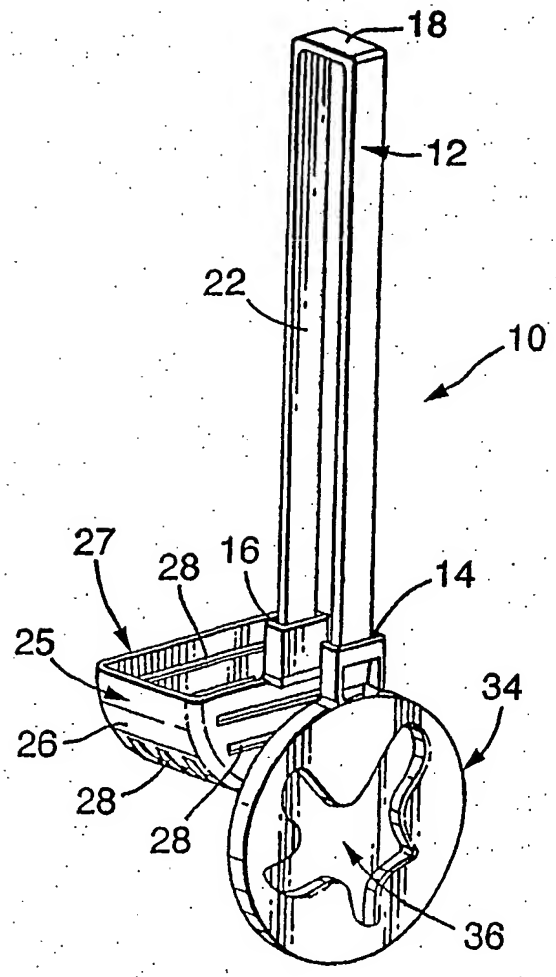

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Fig.5.

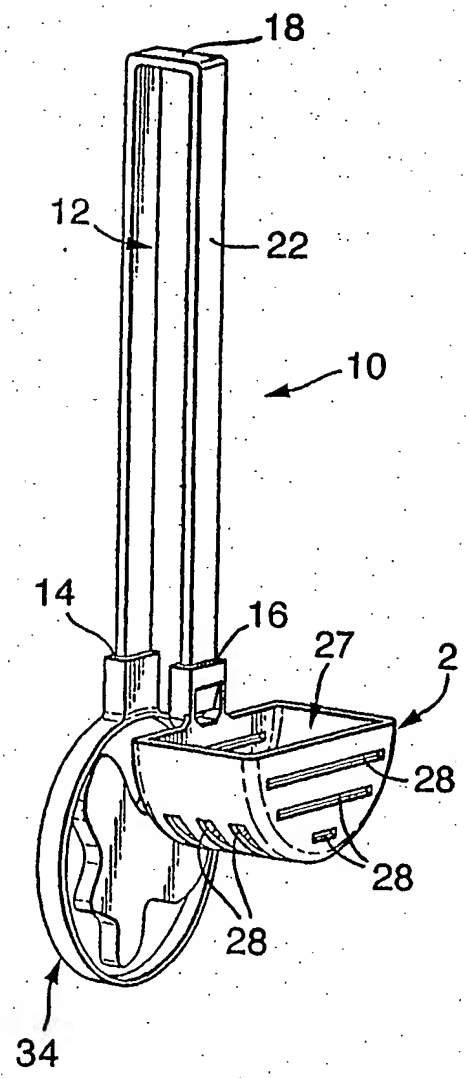
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Fig.6.

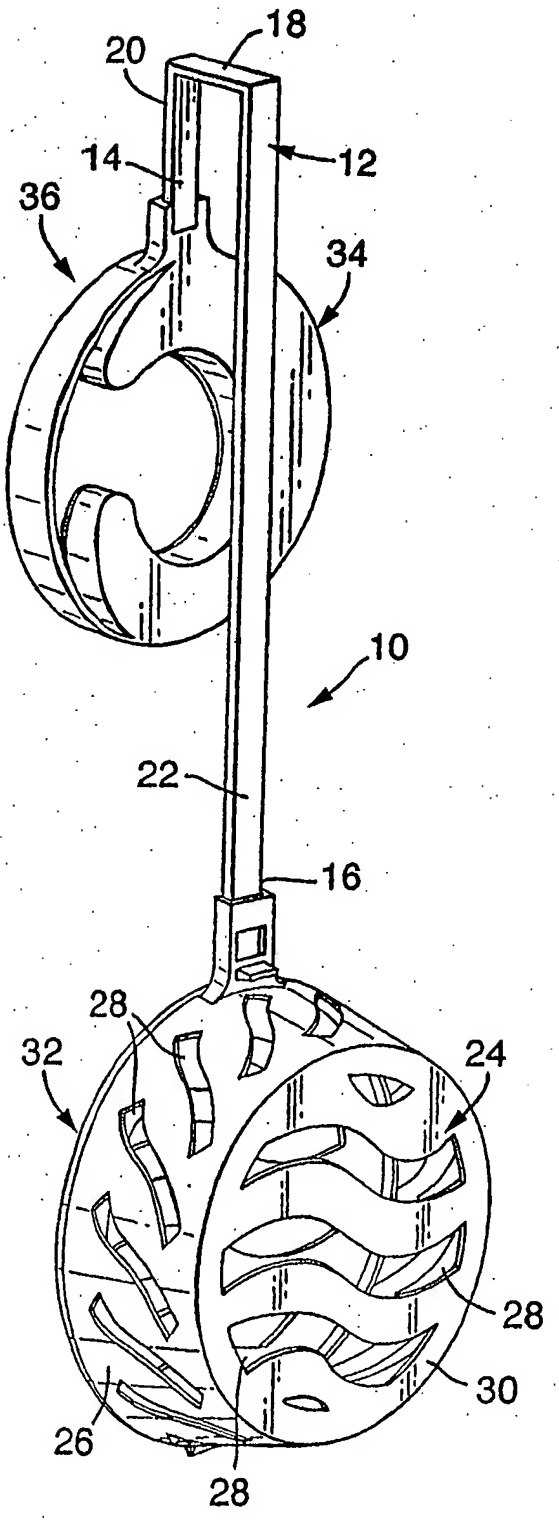
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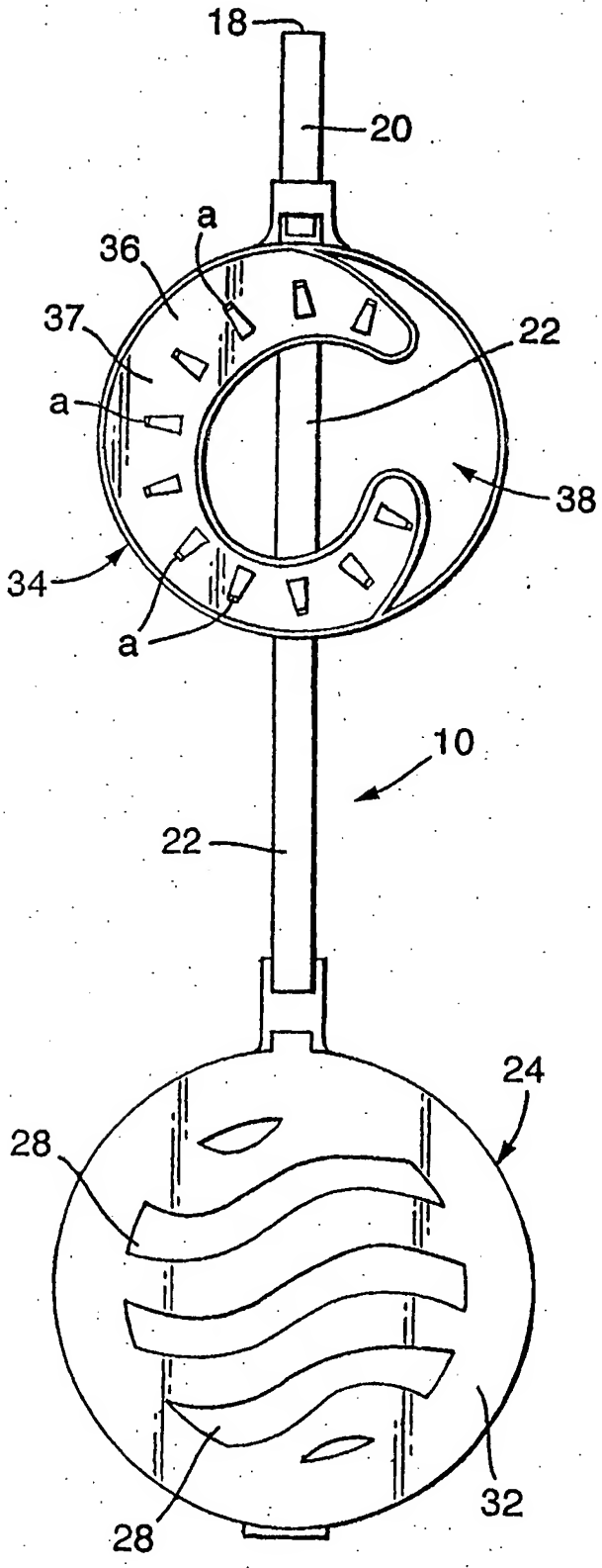
Fig.7.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Attorney Docket. No.: 102792-133 (11256P3 US)

ASSIGNMENT

In consideration of One Dollar ($1.00) in hand paid and other good and valuable considerations, the receipt of which is hereby acknowledged, the undersigned [hereinafter (collectively) named "Assignor"] hereby assigns and transfers to

RECKITT BENCKISER INC.
Morris Corporate Center IV
399 Interpace Parkway
Parsippany, New Jersey 07054
UNITED STATES OF AMERICA

, a Delaware corporation (hereinafter named "Assignee"), its successors, legal representatives and assigns, the entire right, title and interest in and to Assignor's application for Letters Patent of the United States, Application Serial No. 10/561,749, filed on December 21, 2005 (I hereby agree that the attorney on file may insert the correct filing details after execution) entitled

IMPROVED DISPENSING DEVICE

and to Assignor's entire right, title and interest in any and all inventions, whether joint or sole, disclosed in said application for Letters Patent, and in any and all divisional or continuation or renewal applications that may be filed for United States Letters Patent for any and all of said inventions, and in and to any and all patents that may be granted on the foregoing applications and any reissue or extension thereof.

The Assignor hereby authorizes and requests the Commissioner of Patents to issue any and all of said Letters Patent to said Assignee.

For said consideration, the Assignor hereby agrees upon the request of said Assignee, its successors, legal representatives or assigns, to execute any and all United States divisional, continuation and renewal applications for said invention, and any and all necessary oaths, supplemental oaths or declarations or supplemental declarations or affidavits relating thereto, and any application for the reissue or extension of any United States Letters Patent that may be granted upon said application that said Assignee, its successors, legal representatives or assigns may deem necessary or expedient.

For the said consideration the Assignor further agrees upon the request of said Assignee, its successors, legal representatives or assigns, in the event of said application or any division thereof, or Letters Patent issued thereon or any reissue or application for the reissue thereof, becoming involved in interference, to cooperate to the best of the ability of the Assignor with said Assignee, its successors, legal representatives or assigns in the matters of preparing and executing the Preliminary Statement and giving and producing evidence in support thereof, the Assignor hereby agreeing to perform upon such request, any and all affirmative acts necessary to obtain said Letters Patent and vest all rights therein hereby conveyed in said Assignee, its successors, legal representatives or assigns as fully and entirely as the same would have been held and enjoyed by the assignor if this assignment and sale had not been made.

Assignor hereby binds himself, his heirs, legal representatives, administrators, and assigns properly to execute without further consideration, any and all applications, petitions, oaths, assignments or other papers and instruments which may be necessary in order to carry into full force and effect the sale, assignment and transfer hereby made, or intended or agreed to be made.

And for said considerations, the Assignor hereby assigns to said Assignee, its successors, legal representatives and assigns, the entire right, title and interest in said invention or improvement for any and all foreign countries and agrees upon the request of said Assignee, its successors, legal representatives or assigns to execute any and all documents that shall be required of the Assignor to be executed in connection with any and all applications for foreign Letters Patent therefor, including the prosecution thereof, and to execute any and all documents necessary to invest title in said foreign applications and patents in said Assignee, its successors, legal representatives or assigns.

Signature: _____ Date: _____
Lamson NGUYEN

Signature: _____ Date: _____
Jeanne Marie WELLER

COMBINED OATH, DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe that I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

DISPENSER

The specification of which has been filed on August 31, 2005 in the U.S. Patent and Trademark Office as a U.S. Design Patent Application, serial number 29/237,433.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

I hereby claim foreign priority benefits under title 35, U.S.C. §119 of any foreign application(s) for patent or inventor certificates listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application			Priority Claimed	
000307913	Office for Harmonization in the Internal Market (Trade Marks and Designs)	10 March 2005	[X]Yes	[ ] No
(Number)	(Country)	(Day/Month/Year Filed)		

I hereby claim to benefit under 35 U.S.C. §119 (e) of any United States Provisional application(s) listed below:

US Provisional Application Serial No.:	Filing Date:

I hereby claim the benefit under Title 35, U.S.C. §120 of any United States application(s) listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, U.S.C. §112, I acknowledge the duty to disclose maternal information is defined in Title 37, Code of Federal Regulations §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

US Patent Application:	Filing Date:	Status:

I hereby declare that all statements made herein of my own knowledge or true and that all statements made on information and belief are believed to be true; and further that these statements for made with the knowledge that willful false statements and like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Power of Attorney: As a named inventor, I hereby appoint

X	Practitioners Associated with the Customer Number:	27389

as my/our attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from the Assignee of this application as to any action to be taken in the United States Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned.

SEND ALL CORRESPONDENCE TO:	DIRECT TELEPHONE CALLS TO:
Norris, McLaughlin & Marcus PA 875 Third Avenue, 18th Floor New York, NY 10022	Andrew N. Parfomak (212) 808-0700

Full Name of First Inventor:	Tak Wai CHEUNG
Inventor's Signature	
Date of Signature:	
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Residence Address:	Reckitt Benckiser Inc One Phillips Parkway Montvale New Jersey 07645 United States of America
Post Office Address:	-same as residence address-

Full Name of Second Inventor:	Diane NEIMAN
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Reckitt Benckiser Inc One Phillips Parkway Montvale New Jersey 07645 United States of America
Post Office Address:	-same as residence address-

Full Name of Third Inventor:	Tri NGUYEN
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Reckitt Benckiser Inc One Phillips Parkway Montvale New Jersey 07645 United States of America
Post Office Address:	-same as residence address-

Full Name of Fourth Inventor:	Steven WU
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Reckitt Benckiser Inc One Phillips Parkway Montvale New Jersey 07645 United States of America
Post Office Address:	-same as residence address-

Full Name of Fifth Inventor:	Edward FU
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Reckitt Benckiser Inc One Phillips Parkway Montvale New Jersey 07645 United States of America
Post Office Address:	-same as residence address-

Full Name of Sixth Inventor:	Lamson NGUYEN
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	278 Maple Avenue Somerset New Jersey 08873 United States of America
Post Office Address:	-same as residence address-

Full Name of Seventh Inventor:	Jeanne WELLER
Inventor's Signature	
Date of Signature:	
Inventor's Citizenship:	United States
Residence Address:	Reckitt Benckiser Inc One Phillips Parkway Montvale New Jersey 07645 United States of America
Post Office Address:	-same as residence address-

File Ref: 102792-481 / 11593D3 US

DISPENSER

Be it known that we, Tak Wai CHEUNG, Diane NIEMAN, Tri NGUYEN, Steven WU, Edward FU, Lamson NGUYEN, and Jean Marie WELLER, have invented a certain, new, original and ornamental design for a DISPENSER, of which the following is a specification, reference being had to the following drawings, forming a part thereof:

Fig. 1 is an elevated, front perspective view of a DISPENSER;
Fig. 2 is an elevated, rear perspective view thereof;
Fig. 3 is an elevated view of a front face thereof;
Fig. 4 is an elevated view of a rear face thereof;
Fig. 5 is an elevational view of a side thereof;
Fig. 6 is a plan view of the top thereof; and
Fig. 7 is a plan view of the bottom thereof.

We claim:
The ornamental design for a DISPENSER as shown and described.

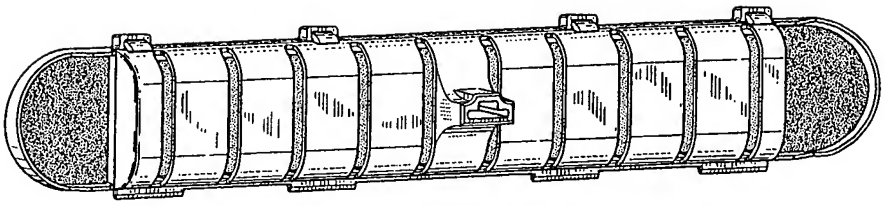

Fig.1.

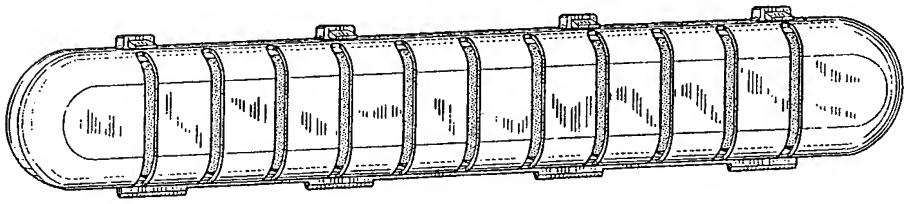

Fig.2.

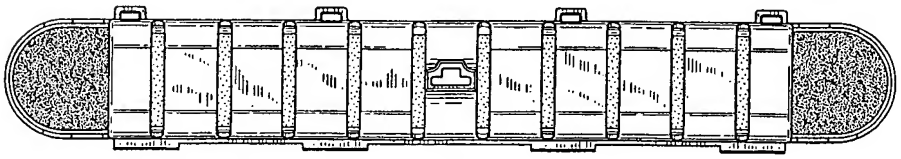

Fig.3.

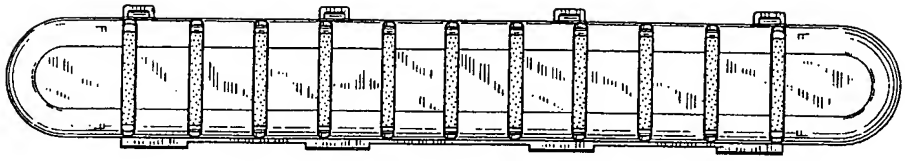

Fig.4.

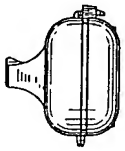

Fig.5.

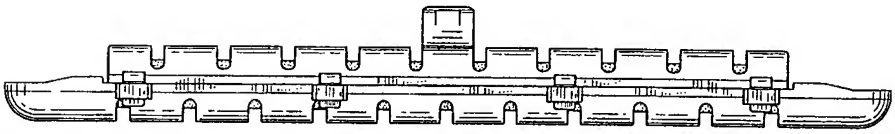

Fig.6.

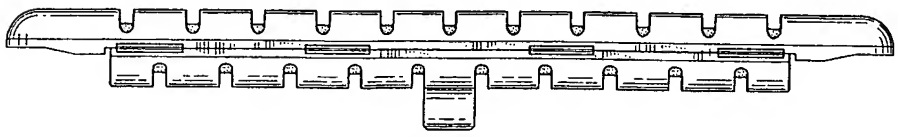

Fig.7.

Attorney Docket. No.: 102792-481 (11593D3 US)

ASSIGNMENT

In consideration of One Dollar ($1.00) in hand paid and other good and valuable considerations, the receipt of which is hereby acknowledged, the undersigned [hereinafter (collectively) named "Assignor"] hereby assigns and transfers to

RECKITT BENCKISER INC.
Morris Corporate Center IV
399 Interpace Parkway,
Parsippany, New Jersey 07054-0225
UNITED STATES OF AMERICA

, a Delaware corporation (hereinafter named "Assignee"), its successors, legal representatives and assigns, the entire right, title and interest in and to Assignor's application for Letters Patent of the United States, Application Serial No. 29/237,433, filed on August 31, 2005, entitled

DISPENSER

and to Assignor's entire right, title and interest in any and all inventions, whether joint or sole, disclosed in said application for Letters Patent, and in any and all divisional or continuation or renewal applications that may be filed for United States Letters Patent for any and all of said inventions, and in and to any and all patents that may be granted on the foregoing applications and any reissue or extension thereof.

The Assignor hereby authorizes and requests the Commissioner of Patents to issue any and all of said Letters Patent to said Assignee.

For said consideration, the Assignor hereby agrees upon the request of said Assignee, its successors, legal representatives or assigns, to execute any and all United States divisional, continuation and renewal applications for said invention, and any and all necessary oaths, supplemental oaths or declarations or supplemental declarations or affidavits relating thereto, and any application for the reissue or extension of any United States Letters Patent that may be granted upon said application that said Assignee, its successors, legal representatives or assigns may deem necessary or expedient.

For the said consideration the Assignor further agrees upon the request of said Assignee, its successors, legal representatives or assigns, in the event of said application or any division thereof, or Letters Patent issued thereon or any reissue or application for the reissue thereof, becoming involved in interference, to cooperate to the best of the ability of the Assignor with said Assignee, its successors, legal representatives or assigns in the matters of preparing and executing the Preliminary Statement and giving and producing evidence in support thereof, the Assignor hereby agreeing to perform upon such request, any and all affirmative acts necessary to obtain said Letters Patent and vest all rights therein hereby conveyed in said Assignee, its successors, legal representatives or assigns as fully and entirely as the same would have been held and enjoyed by the assignor if this assignment and sale had not been made.

Assignor hereby binds himself, his heirs, legal representatives, administrators, and assigns properly to execute without further consideration, any and all applications, petitions, oaths, assignments or other papers and instruments which may be necessary in order to carry into full force and effect the sale, assignment and transfer hereby made, or intended or agreed to be made.

And for said considerations, the Assignor hereby assigns to said Assignee, its successors, legal representatives and assigns, the entire right, title and interest in said invention or improvement for any and all foreign countries and agrees upon the request of said Assignee, its successors, legal representatives or assigns to execute any and all documents that shall be required of the Assignor to be executed in connection with any and all applications for foreign Letters Patent therefor, including the prosecution thereof, and to execute any and all documents necessary to invest title in said foreign applications and patents in said Assignee, its successors, legal representatives or assigns.

Signature: _____ Date: _____
Tak Wai CHEUNG

Signature: _____ Date: _____
Edward FU

Signature: _____ Date: _____
Diane NEIMAN

Signature: _____ Date: _____
Lamson NGUYEN

Signature: _____ Date: _____
Tri NGUYEN

Signature: _____ Date: _____
Jeanne WELLER

Signature: _____ Date: _____
Steven WU